

Program overview

10-Oct-2018 12:41

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

Code	Omschrijving	ECTS	p1	p2	p3	p4	p5
Master AR							
Variant Architecture							
AD							
Architecture and Dwelling							
Master 1 Architecture & Dwelling							
MSc 1 Architecture & Dwelling 'The Netherlands'							
Dwelling							
AR1A060	Delft Lectures on Architectural Design	3					
AR1A065	Delft Lectures on Architectural History	3					
AR1A075	Delft Seminars on Building Technology	6					
AR1AD011	Dwelling Design Studio: 'The Netherlands'	12					
AR1AD030	Seminar Architectural Studies	3					
AR1AD040	Seminar Architectural Reflections	3					
Starting Course MSc1							
Starting Course MSc1 (highly recommended, see course description)							
ARX071	Workshops Faculty of Architecture and the Built Environment	1					
MSc 1 Architecture & Dwelling 'Form, Structure and Aesthetics'							
Dwelling							
AR1A060	Delft Lectures on Architectural Design	3					
AR1A065	Delft Lectures on Architectural History	3					
AR1A075	Delft Seminars on Building Technology	6					
AR1AD013	Form, Structure and Aesthetics	12					
AR1AD030	Seminar Architectural Studies	3					
AR1AD040	Seminar Architectural Reflections	3					
Starting Course MSc1							
Starting Course MSc1 (highly recommended, see course description)							
ARX071	Workshops Faculty of Architecture and the Built Environment	1					
MSc 2							
Compulsory							
AR2A015	Delft Lectures on Architectural Sustainability	3					
Compulsory Choice							
AR2A010	Architectural History Thesis	6					
AR2AT030	Architecture Theory Thesis	6					
21 ECTS Electives							
21 ects of electives, at least 12 for an approved MSc 2 Architecture design project							
MSc 2 Design Projects							
AR0026	MEGA	12					
AR0037	Studio Making	12					
AR0052	Design Studio: Architecture and Urbanism Beyond Oil	12					
AR0067	Architecture & Urban Design	12					
AR0072	Solar Decathlon	12					
AR0076	The New Town: Design Studio Africa	12					
AR0077	The Why Factory MSc2 Design Studio	12					
AR0086	Infrastructure and Environment Design	12					
AR0094	Bucky Lab A	12					
AR0096	EXTREME technology	12					
AR0098	Sustainability project design and elaboration	12					
AR0149	ON SITE, Landscape architectonic explorations	15					
AR0225	MSc2 Studio: Urban (Re)Development Game	12					
AR0681	Heritage and Architecture Design Studio: Research and architectural design	12					
AR0896	Van Gezel tot Meester	21					
AR2AD010	MSc2 Dwelling design studio 'Global Housing'	12					
AR2AI010	Interiors Buildings Cities MSc2 Design Project	12					
AR2AP012	MSc2 Public Building Design Studio	12					
AR2AT020	Agential Materialism Architecture Theory Design Studio	12					
AR2CP010	MSc2 Complex Projects Design and Research Studio	12					
AR2FM010	The Delta Shelter	12					
AR2MET010	Transdisciplinary Encounters	12					
MSc1 Design Projects							
MSc1 design projects below can be taken as an MSc2 project.							
Note that taking an MSc1 project in the MSc2 semester							

		is not recommended, as the study load distribution and schedule will not be optimal		
AR1AD011	Dwelling Design Studio: 'The Netherlands'	12		
AR1AE010	EXTREME architecture	12		
AR1AI010	Interiors Buildings Cities MSc 1 Design Project	12		
AR1AR011	Heritage and Architecture Design Studio: Architectonic Design	12		
AR1CP010	Complex Projects Design Studio	12		
AR1MET010	Ways of Doing	12		
AR1TWF010	The Why Factory Design Studio: Design lab I	12		
MSc 3 Architecture and Dwelling				
Compulsory Choice MSc 3				
Dutch Housing				
AR3A160	Lecture Series Research Methods	6		
AR3AD011	Dutch Housing Research Seminar	6		
AR3AD021	Dutch Housing Tutorial	3		
AR3AD131	Dwelling Graduation Studio: Dutch Housing	15		
Global Housing				
AR3A160	Lecture Series Research Methods	6		
AR3AD030	Global Housing Research Seminar	6		
AR3AD035	Global Housing Tutorial	3		
AR3AD132	Dwelling Graduation Studio: Global Housing	15		
Designing for Care				
Designing for Care in an Inclusive Environment				
AR3A160	Lecture Series Research Methods	6		
AR3AD011	Dutch Housing Research Seminar	6		
AR3AD021	Dutch Housing Tutorial	3		
AR3AD133	Dwelling Graduation Studio: Designing for Care in an Inclusive Environment	15		
MSc 4 Architecture and Dwelling				
Compulsory Choice MSc4				
Dutch Housing				
AR4AD110	Dutch Housing Graduation Studio	30		
Global Housing				
AR4AD130	Global Housing Graduation Studio	30		
Designing for Care				
Designing for Care in an Inclusive Environment				
AR4AD140	Dwelling Graduation Studio: Designing for Care in an Inclusive Environment	30		
AE				
Semester 1, Ae				
MSc 1, Architectural Engineering				
AR1A060	Delft Lectures on Architectural Design	3		
AR1A065	Delft Lectures on Architectural History	3		
AR1A075	Delft Seminars on Building Technology	6		
AR1AE010	EXTREME architecture	12		
AR1AE020	Extreme research	6		
Starting Course MSc1				
Starting Course MSc1 (highly recommended, see course description)				
ARX071	Workshops Faculty of Architecture and the Built Environment	1		
Semester 2, Ae				
MSc 2, Architectural Engineering				
Compulsory				
AR2A015	Delft Lectures on Architectural Sustainability	3		
Compulsory Choice				
AR2A010	Architectural History Thesis	6		
AR2AT030	Architecture Theory Thesis	6		
21 ECTS Electives				
21 ects of electives, at least 12 for an approved MSc 2 Architecture design project				
MSc 2 Design Projects				
AR0026	MEGA	12		
AR0037	Studio Making	12		
AR0052	Design Studio: Architecture and Urbanism Beyond Oil	12		
AR0067	Architecture & Urban Design	12		
AR0072	Solar Decathlon	12		
AR0076	The New Town: Design Studio Africa	12		
AR0077	The Why Factory MSc2 Design Studio	12		
AR0086	Infrastructure and Environment Design	12		
AR0094	Bucky Lab A	12		
AR0096	EXTREME technology	12		
AR0098	Sustainability project design and elaboration	12		
AR0149	ON SITE, Landscape architectonic explorations	15		
AR0225	MSc2 Studio: Urban (Re)Development Game	12		
AR0681	Heritage and Architecture Design Studio: Research and architectural design	12		
AR0896	Van Gezel tot Meester	21		
AR2AD010	MSc2 Dwelling design studio 'Global Housing'	12		
AR2AI010	Interiors Buildings Cities MSc2 Design Project	12		

AR2AP012	MSc2 Public Building Design Studio		
AR2AT020	Agential Materialism Architecture Theory Design Studio	12	
AR2CP010	MSc2 Complex Projects Design and Research Studio	12	
AR2FM010	The Delta Shelter	12	
AR2MET010	Transdisciplinary Encounters	12	
MSc1 Design Projects	MSc1 design projects below can be taken as an MSc2 project.		
	Note that taking an MSc1 project in the MSc2 semester is not recommended, as the study load distribution and schedule will not be optimal		
AR1AD011	Dwelling Design Studio: 'The Netherlands'	12	
AR1AE010	EXTREME architecture	12	
AR1AI010	Interiors Buildings Cities MSc 1 Design Project	12	
AR1AR011	Heritage and Architecture Design Studio: Architectonic Design	12	
AR1CP010	Complex Projects Design Studio	12	
AR1MET010	Ways of Doing	12	
AR1TWF010	The Why Factory Design Studio: Design lab I	12	
Semester 3, Ae	MSc 3, Architectural Engineering		
AR3A160	Lecture Series Research Methods	6	
AR3AE013	Architectural Engineering Graduation Studio Research	9	
AR3AE015	Architectural Engineering Graduation Studio	15	
Semester 4, Ae	MSc 4, Architectural Engineering		
AR4AE010	Architectural Engineering Graduation Studio	30	
A&PB	Architecture and Public Building		
MSc 1 Architecture & Public Building			
AR1A060	Delft Lectures on Architectural Design	3	
AR1A065	Delft Lectures on Architectural History	3	
AR1A075	Delft Seminars on Building Technology	6	
AR1AP011	MSc1 Public Building Design Studio	12	
AR1AP030	Seminar Architectural Studies	3	
AR1AP040	Seminar Architectural Reflections	3	
Starting Course MSc1	Starting Course MSc1 (highly recommended, see course description)		
ARX071	Workshops Faculty of Architecture and the Built Environment	1	
MSc 2			
Compulsory			
AR2A015	Delft Lectures on Architectural Sustainability	3	
Compulsory Choice			
AR2A010	Architectural History Thesis	6	
AR2AT030	Architecture Theory Thesis	6	
21 ECTS Electives	21 ects of electives, at least 12 for an approved MSc 2 Architecture design project		
MSc 2 Design Projects			
AR0026	MEGA	12	
AR0037	Studio Making	12	
AR0052	Design Studio: Architecture and Urbanism Beyond Oil	12	
AR0067	Architecture & Urban Design	12	
AR0072	Solar Decathlon	12	
AR0076	The New Town: Design Studio Africa	12	
AR0077	The Why Factory MSc2 Design Studio	12	
AR0086	Infrastructure and Environment Design	12	
AR0094	Bucky Lab A	12	
AR0096	EXTREME technology	12	
AR0098	Sustainability project design and elaboration	12	
AR0149	ON SITE, Landscape architectonic explorations	15	
AR0225	MSc2 Studio: Urban (Re)Development Game	12	
AR0681	Heritage and Architecture Design Studio: Research and architectural design	12	
AR0896	Van Gezel tot Meester	21	
AR2AD010	MSc2 Dwelling design studio 'Global Housing'	12	
AR2AI010	Interiors Buildings Cities MSc2 Design Project	12	
AR2AP012	MSc2 Public Building Design Studio	12	
AR2AT020	Agential Materialism Architecture Theory Design Studio	12	
AR2CP010	MSc2 Complex Projects Design and Research Studio	12	
AR2FM010	The Delta Shelter	12	
AR2MET010	Transdisciplinary Encounters	12	
MSc1 Design Projects	MSc1 design projects below can be taken as an MSc2 project.		
	Note that taking an MSc1 project in the MSc2 semester is not recommended, as the study load distribution and schedule will not be optimal		
AR1AD011	Dwelling Design Studio: 'The Netherlands'	12	
AR1AE010	EXTREME architecture	12	
AR1AI010	Interiors Buildings Cities MSc 1 Design Project	12	
		12	

AR1AR011	Heritage and Architecture Design Studio: Architectonic Design		
AR1CP010	Complex Projects Design Studio	12	
AR1MET010	Ways of Doing	12	
AR1TWF010	The Why Factory Design Studio: Design lab I	12	
MSc 3 Architecture and Public Building			
AR3A160	Lecture Series Research Methods	6	
AR3AP010	Seminar Research Methods	6	
AR3AP020	Tutorial Research Methods	3	
AR3AP131	Public Building Graduation Studio	15	
MSc 4 Architecture and Public Building			
AR4AP100	Public Building Graduation Studio	30	
CP	Complex projects		
MSc 1 CP			
MSc 1 Complex projects			
AR1A060	Delft Lectures on Architectural Design	3	
AR1A065	Delft Lectures on Architectural History	3	
AR1A075	Delft Seminars on Building Technology	6	
AR1CP010	Complex Projects Design Studio	12	
AR1CP040	Anatomy of a Landmark Seminar	6	
Starting Course MSc1			
Starting Course MSc1 (highly recommended, see course description)			
ARX071	Workshops Faculty of Architecture and the Built Environment	1	
MSc 2			
Compulsory			
AR2A015	Delft Lectures on Architectural Sustainability	3	
Compulsory Choice			
AR2A010	Architectural History Thesis	6	
AR2AT030	Architecture Theory Thesis	6	
21 ECTS Electives			
21 ects of electives, at least 12 for an approved MSc 2 Architecture design project			
MSc 2 Design Projects			
AR0026	MEGA	12	
AR0037	Studio Making	12	
AR0052	Design Studio: Architecture and Urbanism Beyond Oil	12	
AR0067	Architecture & Urban Design	12	
AR0072	Solar Decathlon	12	
AR0076	The New Town: Design Studio Africa	12	
AR0077	The Why Factory MSc2 Design Studio	12	
AR0086	Infrastructure and Environment Design	12	
AR0094	Bucky Lab A	12	
AR0096	EXTREME technology	12	
AR0098	Sustainability project design and elaboration	12	
AR0149	ON SITE, Landscape architectonic explorations	15	
AR0225	MSc2 Studio: Urban (Re)Development Game	12	
AR0681	Heritage and Architecture Design Studio: Research and architectural design	12	
AR0896	Van Gezel tot Meester	21	
AR2AD010	MSc2 Dwelling design studio 'Global Housing'	12	
AR2AI010	Interiors Buildings Cities MSc2 Design Project	12	
AR2AP012	MSc2 Public Building Design Studio	12	
AR2AT020	Agential Materialism Architecture Theory Design Studio	12	
AR2CP010	MSc2 Complex Projects Design and Research Studio	12	
AR2FM010	The Delta Shelter	12	
AR2MET010	Transdisciplinary Encounters	12	
MSc1 Design Projects			
MSc1 design projects below can be taken as an MSc2 project.			
Note that taking an MSc1 project in the MSc2 semester is not recommended, as the study load distribution and schedule will not be optimal			
AR1AD011	Dwelling Design Studio: 'The Netherlands'	12	
AR1AE010	EXTREME architecture	12	
AR1AI010	Interiors Buildings Cities MSc 1 Design Project	12	
AR1AR011	Heritage and Architecture Design Studio: Architectonic Design	12	
AR1CP010	Complex Projects Design Studio	12	
AR1MET010	Ways of Doing	12	
AR1TWF010	The Why Factory Design Studio: Design lab I	12	
MSc 3 CP			
MSc 3 Complex projects			
AR3A160	Lecture Series Research Methods	6	
AR3AT060	New Urban Questions or Minor Infractions	3	
AR3CP010	Complex Projects Graduation Studio	15	
AR3CP040	City of Innovations	6	
MSc 4 CP			
MSc 4 Complex projects			
AR4CP010	Complex Projects Graduation Studio	30	
MA			
Methods and Analysis			
MSc 1 M and A			
MSc 1 Methods and Analysis			

AR1A060	Delft Lectures on Architectural Design	3	
AR1A065	Delft Lectures on Architectural History	3	
AR1A075	Delft Seminars on Building Technology	6	
AR1MET010	Ways of Doing	12	
AR1MET030	Tools of Architecture	3	
AR1MET040	Roles of the Architect	3	
Starting Course MSc1	Starting Course MSc1 (highly recommended, see course description)		
ARX071	Workshops Faculty of Architecture and the Built Environment	1	
MSc 2			
Compulsory			
AR2A015	Delft Lectures on Architectural Sustainability	3	
Compulsory Choice			
AR2A010	Architectural History Thesis	6	
AR2AT030	Architecture Theory Thesis	6	
21 ECTS Electives			
21 ects of electives, at least 12 for an approved MSc 2 Architecture design project			
MSc 2 Design Projects			
AR0026	MEGA	12	
AR0037	Studio Making	12	
AR0052	Design Studio: Architecture and Urbanism Beyond Oil	12	
AR0067	Architecture & Urban Design	12	
AR0072	Solar Decathlon	12	
AR0076	The New Town: Design Studio Africa	12	
AR0077	The Why Factory MSc2 Design Studio	12	
AR0086	Infrastructure and Environment Design	12	
AR0094	Bucky Lab A	12	
AR0096	EXTREME technology	12	
AR0098	Sustainability project design and elaboration	12	
AR0149	ON SITE, Landscape architectonic explorations	15	
AR0225	MSc2 Studio: Urban (Re)Development Game	12	
AR0681	Heritage and Architecture Design Studio: Research and architectural design	12	
AR0896	Van Gezel tot Meester	21	
AR2AD010	MSc2 Dwelling design studio 'Global Housing'	12	
AR2AI010	Interiors Buildings Cities MSc2 Design Project	12	
AR2AP012	MSc2 Public Building Design Studio	12	
AR2AT020	Agential Materialism Architecture Theory Design Studio	12	
AR2CP010	MSc2 Complex Projects Design and Research Studio	12	
AR2FM010	The Delta Shelter	12	
AR2MET010	Transdisciplinary Encounters	12	
MSc1 Design Projects			
MSc1 design projects below can be taken as an MSc2 project.			
Note that taking an MSc1 project in the MSc2 semester is not recommended, as the study load distribution and schedule will not be optimal			
AR1AD011	Dwelling Design Studio: 'The Netherlands'	12	
AR1AE010	EXTREME architecture	12	
AR1AI010	Interiors Buildings Cities MSc 1 Design Project	12	
AR1AR011	Heritage and Architecture Design Studio: Architectonic Design	12	
AR1CP010	Complex Projects Design Studio	12	
AR1MET010	Ways of Doing	12	
AR1TWF010	The Why Factory Design Studio: Design lab I	12	
MSc 3 MA			
MSc 3 Methods and Analysis			
AR3A160	Lecture Series Research Methods	6	
AR3MET010	Seminar Research Methods: Probing into Precedents	6	
AR3MET020	Tutorial Research Methods: Fieldwork	3	
AR3MET100	Methods and Analysis Graduation Studio: Positions in Practice	15	
MSc 4 MA			
MSc 4 Methods and Analysis			
AR4MET100	Methods and Analysis Graduation Studio: Positions in Practice	30	
HA			
Heritage and Architecture			
MSc 1 HA			
MSc 1 Heritage and Architecture			
AR1A060	Delft Lectures on Architectural Design	3	
AR1A065	Delft Lectures on Architectural History	3	
AR1A075	Delft Seminars on Building Technology	6	
AR1AR010	Heritage and Architecture: Methodologies of Architectural Reuse	3	
AR1AR011	Heritage and Architecture Design Studio: Architectonic Design	12	
AR1AR080	Heritage and Architecture: Technology of Conservation	3	
Starting Course MSc1			
Starting Course MSc1 (highly recommended, see course description)			
ARX071	Workshops Faculty of Architecture and the Built Environment	1	
MSc 2			
Compulsory			
AR2A015	Delft Lectures on Architectural Sustainability	3	

Compulsory Choice				
AR2A010	Architectural History Thesis	6		
AR2AT030	Architecture Theory Thesis	6		
21 ECTS Electives	21 ects of electives, at least 12 for an approved MSc 2 Architecture design project			
MSc 2 Design Projects				
AR0026	MEGA	12		
AR0037	Studio Making	12		
AR0052	Design Studio: Architecture and Urbanism Beyond Oil	12		
AR0067	Architecture & Urban Design	12		
AR0072	Solar Decathlon	12		
AR0076	The New Town: Design Studio Africa	12		
AR0077	The Why Factory MSc2 Design Studio	12		
AR0086	Infrastructure and Environment Design	12		
AR0094	Bucky Lab A	12		
AR0096	EXTREME technology	12		
AR0098	Sustainability project design and elaboration	12		
AR0149	ON SITE, Landscape architectonic explorations	15		
AR0225	MSc2 Studio: Urban (Re)Development Game	12		
AR0681	Heritage and Architecture Design Studio: Research and architectural design	12		
AR0896	Van Gezel tot Meester	21		
AR2AD010	MSc2 Dwelling design studio 'Global Housing'	12		
AR2AI010	Interiors Buildings Cities MSc2 Design Project	12		
AR2AP012	MSc2 Public Building Design Studio	12		
AR2AT020	Agential Materialism Architecture Theory Design Studio	12		
AR2CP010	MSc2 Complex Projects Design and Research Studio	12		
AR2FM010	The Delta Shelter	12		
AR2MET010	Transdisciplinary Encounters	12		
MSc1 Design Projects	MSc1 design projects below can be taken as an MSc2 project.			
	Note that taking an MSc1 project in the MSc2 semester is not recommended, as the study load distribution and schedule will not be optimal			
AR1AD011	Dwelling Design Studio: 'The Netherlands'	12		
AR1AE010	EXTREME architecture	12		
AR1AI010	Interiors Buildings Cities MSc 1 Design Project	12		
AR1AR011	Heritage and Architecture Design Studio: Architectonic Design	12		
AR1CP010	Complex Projects Design Studio	12		
AR1MET010	Ways of Doing	12		
AR1TWF010	The Why Factory Design Studio: Design lab I	12		
MSc 3 HA	MSc 3 Heritage and Architecture			
MSc3 Adapting 20th century Heritage				
AR3A160	Lecture Series Research Methods	6		
AR3AH100	Heritage and Architecture Graduation Studio 'Adapting 20C Heritage'	15		
AR3AR022	Analysis of Heritage and Cultural Value	3		
AR3AR032	Analysis of Heritage and Technology	3		
AR3AR142	Analysis of Heritage and Design	3		
MSc3 Revitalising Heritage				
AR3A160	Lecture Series Research Methods	6		
AR3AH110	Heritage and Architecture Graduation Studio 'Revitalising Heritage'	15		
AR3AR022	Analysis of Heritage and Cultural Value	3		
AR3AR032	Analysis of Heritage and Technology	3		
AR3AR142	Analysis of Heritage and Design	3		
MSc 4 HA	MSc 4 Heritage and Architecture			
MSc4 Adapting 20C Heritage				
AR4AH100	Heritage and Architecture Graduation Studio 'Adapting 20C Heritage'	30		
MSc4 Revitalising Heritage				
AR4AH110	Heritage and Architecture Graduation Studio 'Revitalising Heritage'	30		
Interiors Buildings Cities				
MSc 1 AI				
AR1A060	Delft Lectures on Architectural Design	3		
AR1A065	Delft Lectures on Architectural History	3		
AR1A075	Delft Seminars on Building Technology	6		
AR1AI010	Interiors Buildings Cities MSc 1 Design Project	12		
AR1AI040	Interiors Buildings Cities Fundamentals	6		
Starting Course MSc1				
ARX071	Workshops Faculty of Architecture and the Built Environment	1		
MSc 2				
Compulsory				
AR2A015	Delft Lectures on Architectural Sustainability	3		
Compulsory Choice				

AR2A010	Architectural History Thesis	6	
AR2AT030	Architecture Theory Thesis	6	
21 ECTS Electives	21 ects of electives, at least 12 for an approved MSc 2 Architecture design project		
MSc 2 Design Projects			
AR0026	MEGA	12	
AR0037	Studio Making	12	
AR0052	Design Studio: Architecture and Urbanism Beyond Oil	12	
AR0067	Architecture & Urban Design	12	
AR0072	Solar Decathlon	12	
AR0076	The New Town: Design Studio Africa	12	
AR0077	The Why Factory MSc2 Design Studio	12	
AR0086	Infrastructure and Environment Design	12	
AR0094	Bucky Lab A	12	
AR0096	EXTREME technology	12	
AR0098	Sustainability project design and elaboration	12	
AR0149	ON SITE, Landscape architectonic explorations	15	
AR0225	MSc2 Studio: Urban (Re)Development Game	12	
AR0681	Heritage and Architecture Design Studio: Research and architectural design	12	
AR0896	Van Gezel tot Meester	21	
AR2AD010	MSc2 Dwelling design studio 'Global Housing'	12	
AR2AI010	Interiors Buildings Cities MSc2 Design Project	12	
AR2AP012	MSc2 Public Building Design Studio	12	
AR2AT020	Agential Materialism Architecture Theory Design Studio	12	
AR2CP010	MSc2 Complex Projects Design and Research Studio	12	
AR2FM010	The Delta Shelter	12	
AR2MET010	Transdisciplinary Encounters	12	
MSc1 Design Projects	MSc1 design projects below can be taken as an MSc2 project. Note that taking an MSc1 project in the MSc2 semester is not recommended, as the study load distribution and schedule will not be optimal		
AR1AD011	Dwelling Design Studio: 'The Netherlands'	12	
AR1AE010	EXTREME architecture	12	
AR1AI010	Interiors Buildings Cities MSc 1 Design Project	12	
AR1AR011	Heritage and Architecture Design Studio: Architectonic Design	12	
AR1CP010	Complex Projects Design Studio	12	
AR1MET010	Ways of Doing	12	
AR1TWF010	The Why Factory Design Studio: Design lab I	12	
MSc 3 AI	MSc 3 Interiors Buildings Cities		
AR3A160	Lecture Series Research Methods	6	
AR3AI045	Interiors Buildings Cities MSc 3 Graduation Studio	15	
AR3AI050	Interiors Buildings Cities MSc 3 Studio Specific Research 1	3	
AR3AI055	Interiors Buildings Cities MSc 3 Studio Specific Research 2	6	
MSc 4 AI	MSc 4 Interiors Buildings Cities		
AR4AI120	Interiors Buildings Cities MSc 4 Graduation Project	30	
The Why Factory			
MSc 1, The Why Factory			
AR1A060	Delft Lectures on Architectural Design	3	
AR1A065	Delft Lectures on Architectural History	3	
AR1A075	Delft Seminars on Building Technology	6	
AR1TWF010	The Why Factory Design Studio: Design lab I	12	
AR1TWF020	The Why Factory: Actualities Workshop	3	
AR1TWF030	The Why Factory: Future Models I	3	
Starting Course MSc1	Starting Course MSc1 (highly recommended, see course description)		
ARX071	Workshops Faculty of Architecture and the Built Environment	1	
MSc 2			
Compulsory			
AR2A015	Delft Lectures on Architectural Sustainability	3	
Compulsory Choice			
AR2A010	Architectural History Thesis	6	
AR2AT030	Architecture Theory Thesis	6	
21 ECTS Electives	21 ects of electives, at least 12 for an approved MSc 2 Architecture design project		
MSc 2 Design Projects			
AR0026	MEGA	12	
AR0037	Studio Making	12	
AR0052	Design Studio: Architecture and Urbanism Beyond Oil	12	
AR0067	Architecture & Urban Design	12	
AR0072	Solar Decathlon	12	
AR0076	The New Town: Design Studio Africa	12	
AR0077	The Why Factory MSc2 Design Studio	12	

AR0086	Infrastructure and Environment Design	12	
AR0094	Bucky Lab A	12	
AR0096	EXTREME technology	12	
AR0098	Sustainability project design and elaboration	12	
AR0149	ON SITE, Landscape architectonic explorations	15	
AR0225	MSc2 Studio: Urban (Re)Development Game	12	
AR0681	Heritage and Architecture Design Studio: Research and architectural design	12	
AR0896	Van Gezel tot Meester	21	
AR2AD010	MSc2 Dwelling design studio 'Global Housing'	12	
AR2AI010	Interiors Buildings Cities MSc2 Design Project	12	
AR2AP012	MSc2 Public Building Design Studio	12	
AR2AT020	Agential Materialism Architecture Theory Design Studio	12	
AR2CP010	MSc2 Complex Projects Design and Research Studio	12	
AR2FM010	The Delta Shelter	12	
AR2MET010	Transdisciplinary Encounters	12	
MSc1 Design Projects			
MSc1 design projects below can be taken as an MSc2 project.			
Note that taking an MSc1 project in the MSc2 semester is not recommended, as the study load distribution and schedule will not be optimal			
AR1AD011	Dwelling Design Studio: 'The Netherlands'	12	
AR1AE010	EXTREME architecture	12	
AR1AI010	Interiors Buildings Cities MSc 1 Design Project	12	
AR1AR011	Heritage and Architecture Design Studio: Architectonic Design	12	
AR1CP010	Complex Projects Design Studio	12	
AR1MET010	Ways of Doing	12	
AR1TWF010	The Why Factory Design Studio: Design lab I	12	
MSc 3, The Why Factory			
AR3A160	Lecture Series Research Methods	6	
AR3TWF010	The Why Factory: Future Models II	6	
AR3TWF020	The Why Factory: Future Views	3	
AR3TWF030	The Why Factory Graduation Studio	15	
MSc 4, The Why Factory			
AR4TWF010	The Why Factory Graduation Studio	30	
Transitional Territories			
Transitional Territories - Water, Land and Infrastructure			
MSc 3 Transitional Territories			
AR3A160	Lecture Series Research Methods	6	
AR3AP020	Tutorial Research Methods	3	
AR3TT010	Aspects of Water Related Design	6	
AR3TT015	Transitional Territories - Research Module	15	
MSc 4 Transitional Territories			
AR4TT010	Transitional Territories - Design Module	30	
Veldacademie			
MSc 3, Veldacademie			
AR3A160	Lecture Series Research Methods	6	
AR3VA025	Action Research	9	
AR3VA110	Graduation Studio Veldacademie: Architecture	15	
MSc 4 Veldacademie			
AR4VA110	Graduation Studio Veldacademie: Architecture	30	
variant Building Technology			
MSc 1 Building Technology			
AR0531	Innovation and Sustainability	6	
AR1B015-D1	Bucky Lab Design - Design	7	
AR1B015-D2	Bucky Lab Design - CAD	3	
AR1B015-D3	Bucky Lab Design - Production Technique	2	
AR1B025-D1	Bucky Lab Seminars - Structural Mechanics	3	
AR1B025-D2	Bucky Lab Seminars - Material Science	3	
AR1B025-D3	Bucky Lab Seminars+ - BT Research Methodology	3	
AR1B025-D4	Bucky Lab Seminars+ - Building Physics	3	
Starting Course MSc1			
Starting Course MSc1 (highly recommended, see course description)			
ARX071	Workshops Faculty of Architecture and the Built Environment	1	
MSc 2 Building Technology			
Compulsory Choice			
Compulsory Choice (choose 2 courses)			
AR0028	Bridge Design	6	
AR0092	Zero-Energy Design	6	
AR0105	Technoledge Structural Design	6	
AR0115	Technoledge Facade Design	6	
AR0125	Technoledge Climate Design	6	
AR0135	Technoledge Design Informatics	6	
AR0851	1:1 Interactive Architecture Prototypes Workshop	6	
Compulsory Choice			
Compulsory Choice (choose 1 project)			

AR0026	MEGA	12	
AR0072	Solar Decathlon	12	
AR0096	EXTREME technology	12	
AR0098	Sustainability project design and elaboration	12	
AR0850	1:1 Interactive Architecture Prototypes	12	
Free Electives (6 EC)			
MSc 3 Building Technology			
AR3B025	Sustainable Design Graduation Preparation	15	
Compulsory Choice (choose 1 project)			
AR3B011	EARTHY	15	
AR3B015	SWAT Studio	15	
MSc 4 Building Technology			
AR4B025	Sustainable Design Graduation Studio	30	
variant Management in the Built Environment			
MSc 1 Management in the Built Environment			
AR1R016	Design and Construction Management	7	
AR1R025	Real Estate Management	7	
AR1R035	Housing Policy, Management and Sustainability	7	
AR1R046	Management and Finance 1	6	
AR1R055	Research Methods Introduction	3	
Starting Course MSc1 Starting Course MSc1 (highly recommended, see course description)			
ARX071	Workshops Faculty of Architecture and the Built Environment	1	
MSc 2 Management in the Built Environment			
AR2R016	Management and Finance 2	10	
AR2R025	Urban (re)development game: Integrating Planning, Design and Property Development	10	
AR2R036	Re-design: from area to building block	10	
MSc 3 Management in the Built Environment			
AR3R010	MSc 3 Graduation Laboratory Management in the Built Environment	9	
Compulsory Choice (2 out of 3)			
AR3R057	Case study methods	3	
AR3R058	Operations research methods	3	
AR3R059	Applied statistics	3	
Free Electives 15 ECTS			
MSc 4 Management in the Built Environment			
AR4R010	MSc 4 Graduation Laboratory Management in the Built Environment	30	
variant Landscape Architecture			
MSc 1 Landscape Architecture			
AR1LA010	Villa Urbana: Design of an Experimental Ensemble	6	
AR1LA020	Landscape as Object of Architecture	3	
AR1LA031	TOPOS	3	
AR1LA040	Green Architecture: Designing with Plants	3	
AR1LA050	Dutch Waterscapes: Design of a Leisure Landscape	6	
AR1LA060	The Fine Dutch Tradition	3	
AR1LA070	Reflecting Ideas on Landscape: Paradigms and Positions	3	
AR1LA080	Landscape Components: Green and Blue	3	
Starting Course MSc1 Starting Course MSc1 (highly recommended, see course description)			
ARX071	Workshops Faculty of Architecture and the Built Environment	1	
MSc 2 Landscape Architecture			
AR2LA010	Teatro Urbano: Landscape Architecture Practice in Urban Transformation	6	
AR2LA020	Urban Landscapes in History and Thought	3	
AR2LA030	Urban Landscape Systems, Typologies and Strategies	3	
AR2LA040	Engineering and Technology in Urban Landscape Design	3	
15 EC of electives 15 EC of electives, at least 10 EC for a design project. See AR Electives 2018			
MSc 3 Landscape Architecture			
AR3LA020	Research Methodology in Landscape Architecture	5	
AR3LA031	Graduation Studio Landscape Architecture: Flowscapes	20	
AR3LA040	Space and Society	5	
MSc 4 Landscape Architecture			
AR4LA010	Graduation Studio Landscape Architecture: Flowscapes	30	
variant Urbanism			
MSc 1 Urbanism			
AR1U090	R&D Studio: Analysis and Design of Urban Form	10	
AR1U100	R&D Studio: Designing Urban Environments	10	
AR1U121	History and Theory of Urbanism	5	
AR1U131	Sustainable Urban Engineering of Territory	5	
Starting Course MSc1 Starting Course MSc1 (highly recommended, see course description)			
ARX071	Workshops Faculty of Architecture and the Built Environment	1	

MSc 2 Urbanism				
AR2U086	R&D Studio: Spatial Strategies for the Global Metropolis	10		
AR2U088	Research & Design Methodology for Urbanism	5		
Urbanism, Free electives 15 ECTS				
MSc 3 Urbanism				
AR3U013	Analytical methods of urban planning and design	4		
AR3U023	Theories of urban planning and design	4		
AR3U040	Graduation Orientation	2		
AR3U100	Graduation LAB: Urban Transformations & Sustainability	20		
MSc 4 Urbanism				
AR4U010	Graduation Lab: Urban Transformations & Sustainability	30		
Explore Lab				
MSc 3 Explore				
Compulsory for A students				
AR3EX320	Research Explore Lab	12		
Compulsory for BT students				
AR3B011	EARTHY	15		
AR3B015	SWAT Studio	15		
Compulsory for LA students				
AR3LA020	Research Methodology in Landscape Architecture	5		
AR3LA040	Space and Society	5		
Free Electives 2 EC				
Compulsory for MBE students				
Compulsory Choice (2 out of 3)				
AR3R057	Case study methods	3		
AR3R058	Operations research methods	3		
AR3R059	Applied statistics	3		
Free Electives 6 ECTS				
Compulsory for U students				
AR3U013	Analytical methods of urban planning and design	4		
AR3U023	Theories of urban planning and design	4		
AR3U040	Graduation Orientation	2		
2 EC Free electives				
Compulsory for all students				
AR3EX301	Thesis Project 1 Explore Lab	15		
AR3EX311	Workshop Explore Lab	3		
MSc 4 Explore				
AR4EX300	Thesis Project 2 Explorelab	30		
Cross Domain Health				
MSc 3 Cross Domain Health				
Compulsory for A students				
AR3A160	Lecture Series Research Methods	6		
AR3CH010	Health@BK lab	3		
AR3CH020	Workshop Health	6		
AR3CH110	Health@BK lab	15		
Compulsory for MBE students				
Compulsory				
AR3CH010	Health@BK lab	3		
AR3CH020	Workshop Health	6		
AR3CH110	Health@BK lab	15		
Compulsory Choice (2 out of 3)				
AR3R057	Case study methods	3		
AR3R058	Operations research methods	3		
AR3R059	Applied statistics	3		
MSc 4 Cross Domain Health				
AR4CH110	Health@BK lab	30		
Cross Domain Stad van de Toekomst				
MSc 3 Cross Domain Stad van de Toekomst				
Compulsory for A students				
AR3A160	Lecture Series Research Methods	6		
AR3CS010	Workshop Cross Domain Stad van de Toekomst	3		
AR3CS020	Seminar Cross Domain Stad van de Toekomst	6		
AR3CS030	Studio Cross Domain Stad van de Toekomst	15		
Compulsory for U students				
AR3CS040	Seminar Cross Domain Stad van de Toekomst	6		
AR3CS050	Lab Cross Domain Stad van de Toekomst	15		
AR3U013	Analytical methods of urban planning and design	4		
AR3U023	Theories of urban planning and design	4		
AR3U040	Graduation Orientation	2		
Compulsory for MBE students				
Compulsory				

AR3CS060	Workshop Cross Domain Stad van de Toekomst	3	
AR3CS070	Seminar Cross Domain Stad van de Toekomst	6	
AR3CS080	Graduation Cross Domain Stad van de Toekomst	15	
Compulsory Choice (2 out of 3)			
AR3R057	Case study methods	3	
AR3R058	Operations research methods	3	
AR3R059	Applied statistics	3	
MSc 4 Cross Domain Stad van de Toekomst			
For A Students			
AR4CS010	Cross Domain Stad van de Toekomst	30	
For U Students			
AR4CS020	Cross Domain Stad van de Toekomst	30	
For MBE Students			
AR4CS030	Cross Domain Stad van de Toekomst	30	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

Master AR

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

Variant Architecture

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

AD

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

Master 1 Architecture & Dwelling

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

MSc 1 Architecture & Dwelling

AR1A060	Delft Lectures on Architectural Design	3
Responsible Instructor	Dr.ir. S. Komossa	
Course Coordinator	Dr.ir. E.H. Gramsbergen	
Instructor	Dr.ir. E.H. Gramsbergen	
Instructor	Dr.ir. P.J. Teerds	
Instructor	Ir. L.G.K. Spoormans	
Instructor	Dr.ir. B.M. Jurgenhake	
Instructor	Ir. M.J. Smit	
Contact Hours / Week x/x/x/x	2 hours per week	
Education Period	1 3	
Start Education	1 3	
Exam Period	1 2 3 4	
Course Language	English	
Course Contents	<p>The Delft Lectures on Architecture Design highlights current issues of the architecture discipline against the background of the larger societal conditions that have an inevitable impact on the practice of design. Contemporary positions in architecture practice and theory will be discussed. Full professors, associate professors and researchers of the Delft Faculty of Architecture will address key contemporary topics, and investigate historical models and theoretical arguments while discussing the latest architecture projects as well as seminal cases.</p>	
Study Goals	<p>Key questions concern: - where do architects stand and what can they do? - which positions and practices are developed by architects? - what strategies and approaches were and are relevant?</p> <p>After completion of the course: Building on the architectural design courses of the Bachelor, the student has gained knowledge of relevant issues of the discipline of architectural design, practice and its body of knowledge, including the main theoretical concepts and models. The student is able to reflect critically on ethical positions taken by lecturers and expressed by their practises.</p>	
Education Method	<p>The student: - Has appropriate knowledge of the main issues of the discipline of architectural design, practice and its body of knowledge, including the main theoretical concepts and models. - Is aware of the larger historical development of the discipline of architectural design in relation to the main theoretical concepts and models deployed of architecture, art and technology, their application in specific cases as presented in the lecture series addressing current issues of architectural practice and society. - Is able to interpret the architectural design production, both historically and current, in terms of the concepts and models of design as discussed in the lecture series; this includes the larger context of the manifold relations between architecture, the city and society and the relations between design concepts, building production and materialization.</p>	
Assessment	<p>Double lectures (2 x 45 minutes) by full professors, associate professors and researchers of the department of Architecture and other faculty members. Lectures are concentrated in the first half of the semester, during 7 weeks. Generally, the double lectures start with introducing the 'issue', after which the 'architectural positions' are discussed. The lecture coordinators are present to introduce the speakers and the topic, and to moderate questions from the students.</p>	
Special Information	<p>The format of the examination is a digital exam with a duration of three hours, which means the examination is taken place in a specifically equipped examination hall on the campus. The maximum marking period is 10 work days.</p>	
Period of Education	The maximum marking period is 10 work days.	
Course evaluation	Quarter	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1A065	Delft Lectures on Architectural History	3
Responsible Instructor	Prof.dr.ing. C.M. Hein	
Responsible Instructor	Dr. H.D. van Bergeijk	
Course Coordinator	Dr. H.D. van Bergeijk	
Contact Hours / Week x/x/x/x	X/X/X/X	
Education Period	2	
	4	
Start Education	2	
	4	
Exam Period	2	
	3	
	4	
	5	
Course Language	English	
Course Contents	<p>This course provides a deepening of a particular part of the knowledge that the student has gained in the earlier stages of his curriculum. It consists of a lecture series of Capita Selecta dealing with the modern architectural production from 1850 till about 1940. This year the course will focus especially on the birth of modernism in the periode from the beginning of World War I till the collapse of the stock market in 1929. De Stijl-artists and the Bauhaus will be the core of the course but also figures like Dudok, Stam and others will receive due attention. We will try to explore how the abolition of history led to a new concept of society and the underlying concepts of civitas. A belief in the machine produced also a new ethics that will have an influence on the development of society in the 20th and 21st century.</p>	
Study Goals	<p>The student</p> <ul style="list-style-type: none"> - has acquired a sufficient framework to place and value different contributions to the history of the discipline and society in general. - has gained insights on a specific theme and has deepened his knowledge - has an understanding of some of the tools of the architect from a historical point of view. - knows how to apply certain terms and is critical to their meaning - can relate to the work of architectural historians - is capable of giving a motivated and well-argued answer to the questions - has an idea of the importance of the ethical position of the architect and critic in relation to certain important issues 	
Education Method	Lectures Readings	
Literature and Study Materials	<p>All students should read:</p> <ul style="list-style-type: none"> - Michael White, De Stijl and Dutch Modernism (Manchester University Press). 	
	Further readings will, if necessary, be provided through Blackboard.	
Assessment	<p>Exam with essay questions in which the students exposes his knowledge. The student can choose from the questions. The answer to an essay question should be given in about 500 words. The knowledge that the students shows should be related to his readings and the ideas that he has formed during the course. Students are expected to challenge themselves.</p>	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1A075	Delft Seminars on Building Technology	6
Responsible Instructor	Prof.ir. M.F. Asselbergs	
Responsible Instructor	Ir. B. Gremmen	
Course Coordinator	Ir. B. Gremmen	
Contact Hours / Week x/x/x/x	40 hours per quarter	
Education Period	1 3	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	We expect that you followed the bachelor in Delft or a similar education elsewhere in the world. You have gained knowledge and practices in the next topics:	
	<ol style="list-style-type: none"> 1. constructional and structural detailing (1:20/5/2/1) 2. Structures/constructions in steel, wood and concrete 3. Climate issues, ventilation, heating and cooling 	
	Literature list for International students, master Architecture We take the content of these books as read before participating.	
	<p>Components and connections Author: Meijs, Maarten Contributor: Knaack, Ulrich Publisher: Birkhäuser Publish date: 2009 Document type: book ISBN: 978-3-7643-8669-6 Subtitle: principles of construction Classification: UJA / Building structures: general Chapters all</p>	
	<p>Building construction illustrated Author Ching, Francis D.K Publisher Wiley Publish date 2008 Document type book ISBN 978-0-470-08781-7 Edition 4th ed. Chapters all</p>	
	<p>Structures Author Schodek, Daniel L. Publisher Pearson/Prentice Hall Publish date 2008 Document type book ISBN 0-13-178939-2 Edition 6th ed. Chapters 1,2,3,4,6,7,9,10,13,14,15,16,</p>	
	<p>Climate and Architecture Author Dahl, Torben Publisher Routledge Publish date 2010 Document type book ISBN 978-0-415-56308-6 Edition 1th ed. Chapters all</p>	
	<p>Building Physics Author Linden, A.C. van der Publisher Thiemeleuhenhoff Publish date 2013 Document type book ISBN 978-9006-95155-4 Edition 1th ed Chapters all</p>	
Course Contents	In this course you will make a new technical design for a selected fragment of a case study building or a fragment. In two posters (A0) you will present your new design in technical drawings 1:20 and 1:5/1. Next you will explain the structural design, climate design and facade design in informative diagrams, illustrated with photographs and sketches.	
Study Goals	The student:	
	<ol style="list-style-type: none"> 1. Is able to use research skills in technological design issues and is able to formulate an accurate guiding theme or position, that guides the design process 2. Is able to recognize technical design problems and is able to select -in a substantiate manner- the best solution from a series of (self) formulated possible design alternatives 3. Is able to interpret and integrate the aspects of structure design, construction (facade) design and climate design in a design of a building 4. Is able to provide innovative design solutions especially with regard to the use of energy and providing comfort in building design 5. Is capable of drawing and presenting architectural and technical aspects of a design in a coherent and clear manner 	
Education Method	work groups (seminars)	
Books	<ul style="list-style-type: none"> - Millais, M., 'Building structures, a conceptual approach', London, 1999 - Jones, B., Peter, 'Modern Architecture Through Case Studies', Oxford, 2002 - Daniels, 'Advanced Building Systems, a technical guide for architects and engineers', Basel, 2003 - Frampton, 'Studies in Tectonic Cultures', The MIT Press, 1995 - Ronner, Kolliker, Rysler, 'Baustuktur', Basel, 1995 - Schittich, C., 'In detail: building skins: concepts, layers, materials Basel', Basel, 2001 - Watts, A., 'Modern Construction Handbook', Wien, 2001 - Watts, A., 'Modern Construction Facades', Wien, 2005 	

<p>Assessment</p>	<p>- Bachman, L.R., 'Integrated Buildings', Hoboken Wiley, 2003 - Cook, P., Primer, 'Emancipation of Structure', London, 1996 - Deplazes, D., 'Architektur Konstruieren', Basel, 2005 - Addis, B., 'Building, 3000 years of Design Engineering and Construction', London, 2007</p> <p>The examination will take place in the form of a poster (pin-up) presentation in the studio spaces. Examination will only take place during the final presentations of the course. The date of the final presentation will be announced in the seminar handout. You will receive a mark between 1 and 10 with the following meaning:</p> <p>10 Excellent 9 Very good 8 Good 7 Quite sufficient work 6 Sufficient</p> <p>5,5 Almost sufficient, can be corrected with a repair task without tutoring. Only minor deficiencies can be fixed as a repair task, decided by the tutor. Must be finished within two weeks after the final presentation. Second repair is not possible. Your work will be marked with an V.If the repair does not higher the grade up to V you will have to redo the course.</p> <p>in the case of a delayed evaluation (by request of the study counsellar), the figure will be a maximum of 6.</p> <p>5 and lower, Unsufficient, you have to redo the course next semester</p> <p>NV in case you did not finish the course</p>
<p>Special Information</p> <p>Period of Education</p> <p>Concept Schedule</p>	<p>The maximum marking period is 10 work days.</p> <p>Quarter</p> <p>Q1: In the weeks 1.1 up to and including week 1.6 of the 1st quarter you need to reserve in time Q3: In the weeks 3.1 up to and including week 3.5 of the 3rd quarter you need to reserve in time</p> <p>Tutoring: 40 hours Independent study: 128 hours</p> <p>Seminars will take place on Tuesdays and Fridays, mornings or afternoon. Final presentation will take place on the Friday of the week 1.6 (Q1) and 3.5 (Q3)</p>
<p>Leerstoel</p> <p>Course evaluation</p>	<p>Architectural Engineering</p> <p>For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/</p>

AR1AD011	Dwelling Design Studio: 'The Netherlands'	12
Responsible Instructor	Ir. P.S. van der Putt	
Course Coordinator	Ir. P.S. van der Putt	
Instructor	Ir. P.A.M. Kuitenbrouwer	
Instructor	Ir. O. Klijn	
Contact Hours / Week x/x/x/x	112 hours per semester	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Course Contents	<p>Students of the Dutch Housing Studio design a residential complex in an urban environment in the Netherlands. The design is accompanied/preceded by research into the design assignment and the specific topics of the studio.</p> <p>Each semester the design assignment may be different from the one before. Oftentimes there are two studio options (however, the chair reserves the right to cancel an option if there is a lack of interest from students).</p> <p>Though topics may vary from one semester to the next, at the core of each studio lies the design of dwellings and of the dwelling environment, complemented by research and literature study. Design work is done individually, while some of the research may be performed in teams.</p> <p>Topics of the Studio may include (but are not limited to) the inclusive city, work-live combinations, projects for specific target groups, and small scale interventions. More specific information about the design assignment of the upcoming semester can be found on the website and at the Master-information meetings that take place twice a year.</p> <p>All MSc 1 Dwelling students will take part in a site excursion as well as a workshop or master class revolving around the theme of the studio. The studio is not available for MSc 2 students. MSc 1 students are required to also enrol in Architectural Studies (AR1AD030) and Architectural Reflections (AR1AD040).</p>	
Study Goals	<p>Upon completion of the course the student is able to</p> <ul style="list-style-type: none"> design a sketch version of an urban plan for a given area in terms of massing, program and zoning. design a complex residential building with additional functions, subscribing to the functional demands of the brief and the spatial, structural, technical and aesthetic requirements of architecture. design several dwellings that suit functional demands of their respective target groups. perform research of precedent projects and to demonstrate their impact on his/her own design. develop and compare design alternatives. critically reflect on the assumptions and starting points of the brief. convey his/her design ideas by way of (oral) presentations. critically reflect on his/her own design process. 	
Education Method	Studio: 70 hours Self-study: 266 hours	
Assessment	<p>Presentations will be held throughout the semester; assessment by way of final presentations at the end of the studio. Exact requirements to be announced at the start of the studio.</p> <p>The final grade (F) for AR1AD011 will be a weighted average of the Architecture grade (A) and the Building Technology grade (BT), such that $0,8 \times A + 0,2 \times BT = F$. Both A and BT will be rounded to half or whole points. The final grade will be rounded to one decimal place.</p>	
Special Information	The maximum marking period is 10 working days.	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1AD030	Seminar Architectural Studies	3
Responsible Instructor	Ir. P.S. van der Putt	
Course Coordinator	Ir. P.S. van der Putt	
Contact Hours / Week x/x/x/x	28 hours per quarter	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Course Contents	<p>The seminar Architectural Studies focuses on adopting an academic attitude in order to describe, analyse and interpret an historical or contemporary housing project. Students learn to collect, select and analyse the proper materials as well as modes of expression to present their case study according to the required point of view.</p> <p>The courses Architectural Studies is combined with Architectural Reflections (Ar1Ad040) and upon completion the same grade will be awarded for both courses.</p> <p>The contents of the seminars are closely related to the MSc 1 studios of the chair of Architecture and Dwelling.</p>	
Study Goals	<p>Upon completion of the course the student should be able to:</p> <ul style="list-style-type: none"> distinguish between different modes of expression when describing, analysing or interpreting an architectural object; visually and verbally present an architectural object according to a specified position; make appropriate analytical drawings of an architectural object, using the techniques presented in the provided literature; draw intelligently and in accordance with academic standards; express an original idea about an architectural object; perform pointed literature and archival research into an architectural object; reflect on drawing exercises by others. 	
Education Method	Seminar: 20 hours Independent study: 64 hours	
Literature and Study Materials	Literature list to be announced at the start of the seminar.	
Assessment	Research report and presentation	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1AD040	Seminar Architectural Reflections	3
Responsible Instructor	Ir. P.S. van der Putt	
Course Coordinator	Ir. P.S. van der Putt	
Contact Hours / Week x/x/x/x	28 hours per quarter	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Course Contents	<p>The seminar Architectural Reflections focuses on adopting an academic attitude in order to describe, analyse and interpret an historical or contemporary housing project. Students learn to collect, select and analyse the proper materials as well as modes of expression to present their case study according to the required point of view.</p> <p>The courses Architectural Studies is combined with Architectural Studies (Ar1Ad030) and upon completion the same grade will be awarded for both courses.</p> <p>The contents of the seminars are closely related to the MSc 1 studios of the chair of Architecture and Dwelling.</p>	
Study Goals	<p>Upon completion of the course the student should be able to:</p> <ul style="list-style-type: none"> distinguish between different modes of expression when describing, analysing or interpreting an architectural object; visually and verbally present an architectural object according to a specified position; make appropriate analytical drawings of an architectural object, using the techniques presented in the provided literature; draw intelligently and in accordance with academic standards; express an original idea about an architectural object; perform pointed literature and archival research into an architectural object; reflect on drawing exercises by others. 	
Education Method	Seminar: 20 hours Independent study: 64 hours	
Literature and Study Materials	Literature list to be announced at the start of the seminar.	
Assessment	Research report and presentation	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

Starting Course MSc1

ARX071	Workshops Faculty of Architecture and the Built Environment	1
Responsible Instructor	Dr.ir. R. Cavallo	
Contact Hours / Week x/x/x/x	X / 0 / 0 / 0	
Education Period	1	
Start Education	1	
Exam Period	none	
Course Language	English	
Course Contents	<p>All new MSc students of the Faculty of Architecture and the Built Environment will start the academic year 2018-2019 with a 3-day workshop programme on 30 & 31 August and 3 September 2018.</p> <p>The programme is developed in cooperation with TPM colleagues of the section "Ethics & Philosophy of Technology". With a mix of lectures, workshops and sessions guided by teachers of the faculty, you will be introduced to (design) ethics, scientific integrity and intercultural communication.</p> <p>With these workshops you will make a first start to cover the ethics engineering learning goals of the MSc programmes. Further, we wish to enhance the interaction between all new students, both Dutch and International, and to introduce you to settings, methods and procedures of the faculty.</p> <p>Participation in the workshops is mandatory for all students starting their MSc 1 programme in September.</p>	
Study Goals	- The student has a basic understanding of moral sensibility, moral analysis skills, moral creativity, moral judgement skills, moral decision-making skills and moral argumentation skills.	
Education Method	Lectures, workshops, role playing game, assignment	
Assessment	Workshops attendance Assessment: V (passed) or NV (failed)	
Special Information	<p>The academic year will start with a three day workshop programme. With a mix of lectures, workshops and sessions guided by teachers of the faculty, you will be introduced to (design) ethics, scientific integrity and intercultural communication. With these workshops you will make a first start to cover the ethics engineering learning goals of the MSc programmes. Further, we wish to enhance the interaction between all new students, both Dutch and International, and to introduce you to settings, methods and procedures of the faculty. The workshops will lay the foundation for your master studies. It is highly recommended for both Dutch and International students to participate in this programme and you will be granted 1 EC after following the whole programme. This EC will be used in your electives list Master 2/3.</p> <p>For more information see website: https://www.tudelft.nl/studenten/faculteiten/bk-studentenportal/onderwijs/master-of-science/workshops-master-students/</p>	
Period of Education	3 days	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

MSc 1 Architecture & Dwelling

AR1A060	Delft Lectures on Architectural Design	3
Responsible Instructor	Dr.ir. S. Komossa	
Course Coordinator	Dr.ir. E.H. Gramsbergen	
Instructor	Dr.ir. E.H. Gramsbergen	
Instructor	Dr.ir. P.J. Teerds	
Instructor	Ir. L.G.K. Spoormans	
Instructor	Dr.ir. B.M. Jurgenhake	
Instructor	Ir. M.J. Smit	
Contact Hours / Week x/x/x/x	2 hours per week	
Education Period	1 3	
Start Education	1 3	
Exam Period	1 2 3 4	
Course Language	English	
Course Contents	<p>The Delft Lectures on Architecture Design highlights current issues of the architecture discipline against the background of the larger societal conditions that have an inevitable impact on the practice of design. Contemporary positions in architecture practice and theory will be discussed. Full professors, associate professors and researchers of the Delft Faculty of Architecture will address key contemporary topics, and investigate historical models and theoretical arguments while discussing the latest architecture projects as well as seminal cases.</p>	
Study Goals	<p>Key questions concern: - where do architects stand and what can they do? - which positions and practices are developed by architects? - what strategies and approaches were and are relevant?</p> <p>After completion of the course: Building on the architectural design courses of the Bachelor, the student has gained knowledge of relevant issues of the discipline of architectural design, practice and its body of knowledge, including the main theoretical concepts and models. The student is able to reflect critically on ethical positions taken by lecturers and expressed by their practises.</p>	
Education Method	<p>The student: - Has appropriate knowledge of the main issues of the discipline of architectural design, practice and its body of knowledge, including the main theoretical concepts and models. - Is aware of the larger historical development of the discipline of architectural design in relation to the main theoretical concepts and models deployed of architecture, art and technology, their application in specific cases as presented in the lecture series addressing current issues of architectural practice and society. - Is able to interpret the architectural design production, both historically and current, in terms of the concepts and models of design as discussed in the lecture series; this includes the larger context of the manifold relations between architecture, the city and society and the relations between design concepts, building production and materialization.</p>	
Assessment	<p>Double lectures (2 x 45 minutes) by full professors, associate professors and researchers of the department of Architecture and other faculty members. Lectures are concentrated in the first half of the semester, during 7 weeks. Generally, the double lectures start with introducing the 'issue', after which the 'architectural positions' are discussed. The lecture coordinators are present to introduce the speakers and the topic, and to moderate questions from the students.</p>	
Special Information	<p>The format of the examination is a digital exam with a duration of three hours, which means the examination is taken place in a specifically equipped examination hall on the campus. The maximum marking period is 10 work days.</p>	
Period of Education	Quarter	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1A065	Delft Lectures on Architectural History	3
Responsible Instructor	Prof.dr.ing. C.M. Hein	
Responsible Instructor	Dr. H.D. van Bergeijk	
Course Coordinator	Dr. H.D. van Bergeijk	
Contact Hours / Week x/x/x/x	X/X/X/X	
Education Period	2 4	
Start Education	2 4	
Exam Period	2 3 4 5	
Course Language	English	
Course Contents	This course provides a deepening of a particular part of the knowledge that the student has gained in the earlier stages of his curriculum. It consists of a lecture series of Capita Selecta dealing with the modern architectural production from 1850 till about 1940. This year the course will focus especially on the birth of modernism in the periode from the beginning of World War I till the collapse of the stock market in 1929. De Stijl-artists and the Bauhaus will be the core of the course but also figures like Dudok, Stam and others will receive due attention. We will try to explore how the abolition of history led to a new concept of society and the underlying concepts of civitas. A belief in the machine produced also a new ethics that will have an influence on the development of society in the 20th and 21st century.	
Study Goals	The student - has acquired a sufficient framework to place and value different contributions to the history of the discipline and society in general. - has gained insights on a specific theme and has deepened his knowledge - has an understanding of some of the tools of the architect from a historical point of view. - knows how to apply certain terms and is critical to their meaning - can relate to the work of architectural historians - is capable of giving a motivated and well-argued answer to the questions - has an idea of the importance of the ethical position of the architect and critic in relation to certain important issues	
Education Method	Lectures Readings	
Literature and Study Materials	All students should read: - Michael White, De Stijl and Dutch Modernism (Manchester University Press).	
	Further readings will, if necessary, be provided through Blackboard.	
Assessment	Exam with essay questions in which the students exposes his knowledge. The student can choose from the questions. The answer to an essay question should be given in about 500 words. The knowledge that the students shows should be related to his readings and the ideas that he has formed during the course. Students are expected to challenge themselves.	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1A075	Delft Seminars on Building Technology	6
Responsible Instructor	Prof.ir. M.F. Asselbergs	
Responsible Instructor	Ir. B. Gremmen	
Course Coordinator	Ir. B. Gremmen	
Contact Hours / Week x/x/x/x	40 hours per quarter	
Education Period	1 3	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	We expect that you followed the bachelor in Delft or a similar education elsewhere in the world. You have gained knowledge and practices in the next topics:	
	<ol style="list-style-type: none"> 1. constructional and structural detailing (1:20/5/2/1) 2. Structures/constructions in steel, wood and concrete 3. Climate issues, ventilation, heating and cooling 	
	Literature list for International students, master Architecture We take the content of these books as read before participating.	
	<p>Components and connections Author: Meijs, Maarten Contributor: Knaack, Ulrich Publisher: Birkhäuser Publish date: 2009 Document type: book ISBN: 978-3-7643-8669-6 Subtitle: principles of construction Classification: UJA / Building structures: general Chapters all</p>	
	<p>Building construction illustrated Author Ching, Francis D.K Publisher Wiley Publish date 2008 Document type book ISBN 978-0-470-08781-7 Edition 4th ed. Chapters all</p>	
	<p>Structures Author Schodek, Daniel L. Publisher Pearson/Prentice Hall Publish date 2008 Document type book ISBN 0-13-178939-2 Edition 6th ed. Chapters 1,2,3,4,6,7,9,10,13,14,15,16,</p>	
	<p>Climate and Architecture Author Dahl, Torben Publisher Routledge Publish date 2010 Document type book ISBN 978-0-415-56308-6 Edition 1th ed. Chapters all</p>	
	<p>Building Physics Author Linden, A.C. van der Publisher Thiemeleuhenhoff Publish date 2013 Document type book ISBN 978-9006-95155-4 Edition 1th ed Chapters all</p>	
Course Contents	In this course you will make a new technical design for a selected fragment of a case study building or a fragment. In two posters (A0) you will present your new design in technical drawings 1:20 and 1:5/1. Next you will explain the structural design, climate design and facade design in informative diagrams, illustrated with photographs and sketches.	
Study Goals	<p>The student:</p> <ol style="list-style-type: none"> 1. Is able to use research skills in technological design issues and is able to formulate an accurate guiding theme or position, that guides the design process 2. Is able to recognize technical design problems and is able to select -in a substantiate manner- the best solution from a series of (self) formulated possible design alternatives 3. Is able to interpret and integrate the aspects of structure design, construction (facade) design and climate design in a design of a building 4. Is able to provide innovative design solutions especially with regard to the use of energy and providing comfort in building design 5. Is capable of drawing and presenting architectural and technical aspects of a design in a coherent and clear manner 	
Education Method	work groups (seminars)	
Books	<ul style="list-style-type: none"> - Millais, M., 'Building structures, a conceptual approach', London, 1999 - Jones, B., Peter, 'Modern Architecture Through Case Studies', Oxford, 2002 - Daniels, 'Advanced Building Systems, a technical guide for architects and engineers', Basel, 2003 - Frampton, 'Studies in Tectonic Cultures', The MIT Press, 1995 - Ronner, Kolliker, Rysler, 'Baustuktur', Basel, 1995 - Schittich, C., 'In detail: building skins: concepts, layers, materials Basel', Basel, 2001 - Watts, A., 'Modern Construction Handbook', Wien, 2001 - Watts, A., 'Modern Construction Facades', Wien, 2005 	

Assessment	<ul style="list-style-type: none"> - Bachman, L.R., 'Integrated Buildings', Hoboken Wiley, 2003 - Cook, P., Primer, 'Emancipation of Structure', London, 1996 - Deplazes, D., 'Architektur Konstruieren', Basel, 2005 - Addis, B., 'Building, 3000 years of Design Engineering and Construction', London, 2007 <p>The examination will take place in the form of a poster (pin-up) presentation in the studio spaces. Examination will only take place during the final presentations of the course. The date of the final presentation will be announced in the seminar handout. You will receive a mark between 1 and 10 with the following meaning:</p> <p>10 Excellent 9 Very good 8 Good 7 Quite sufficient work 6 Sufficient</p> <p>5,5 Almost sufficient, can be corrected with a repair task without tutoring. Only minor deficiencies can be fixed as a repair task, decided by the tutor. Must be finished within two weeks after the final presentation. Second repair is not possible. Your work will be marked with an V.If the repair does not higher the grade up to V you will have to redo the course.</p> <p>in the case of a delayed evaluation (by request of the study counsellar), the figure will be a maximum of 6.</p> <p>5 and lower, Unsufficient, you have to redo the course next semester</p> <p>NV in case you did not finish the course</p>
Special Information Period of Education Concept Schedule	<p>The maximum marking period is 10 work days.</p> <p>Quarter</p> <p>Q1: In the weeks 1.1 up to and including week 1.6 of the 1st quarter you need to reserve in time Q3: In the weeks 3.1 up to and including week 3.5 of the 3rd quarter you need to reserve in time</p> <p>Tutoring: 40 hours Independent study: 128 hours</p> <p>Seminars will take place on Tuesdays and Fridays, mornings or afternoon. Final presentation will take place on the Friday of the week 1.6 (Q1) and 3.5 (Q3)</p>
Leerstoel Course evaluation	<p>Architectural Engineering</p> <p>For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/</p>

AR1AD013	Form, Structure and Aesthetics		12
Responsible Instructor	P.A. Koorstra		
Course Coordinator	P.A. Koorstra		
Instructor	G. Coumans		
Instructor	Ir. J.H. Lühinger		
Education Period	1 2		
Start Education	1		
Exam Period	none		
Course Language	English		
Expected prior knowledge	BSc completed.		
Course Contents	<p>The central question in the studio is how aesthetical values can be achieved as a result of the integrated design process. Taking a stand in the discussion evoked by this question will help to understand the role of the architect in a rapidly changing environment.</p> <p>In the debate about sustainability we see a consensus about the need for integration of sustainable solutions in architecture. Doing research by design, inspired by the available sustainable solutions seems to be the best preparation for the near future. Students will be guided in experimenting with specific technical solutions with a focus on aesthetics.</p> <p>The main topics of the Studio: The expression of structure and detail in architecture The aesthetical consequences of sustainable solutions in architecture</p> <p>We are looking for a formal expression, directly related to a clear guiding theme. The structure or construction and the detail are part of this expression. Sometimes they can even become the guiding theme. At least the desired expression will have a direct link to the proportions and materialisation. How can we use our intuition to integrate this into the design?</p> <p>The Form, Structure & Aesthetics Studio focusses on designing a culturally oriented building in the Netherlands. The design is accompanied and preceded by research based on analysis. Design work is done individually, while some of the research will be performed in teams.</p>		
Study Goals	<p>Upon completion of the course the student is able to</p> <ul style="list-style-type: none"> use analysis as a design tool use and construct physical models, hand drawings and digital models to represent specific design themes conduct experiments and make use of them in the design process understand and practice the concept of the integrated architectural design document and reflect on the design process and outcome 		
Education Method	<p>Design Studio format with weekly assistances starting week 6. Analysis are made in groups, design individually. During assistances lectures may be given.</p>		
Assessment	<p>Assessment based on process, analysis, documentation and final presentation. The final presentation is as an assessment divided in oral presentation, visual representation and a project dossier. The dossier will combine a documentation of the design process and a written reflection. The final grade (F) for AR*** will be a weighted average of the Architecture grade (A) and the Building Technology grade (BT), such that $0,8 \times A + 0,2 \times BT = F$. Both A and BT will be rounded to half or whole points. The final grade will be rounded to one decimal place.</p> <p>The maximum marking period is 10 working days.</p>		
Special Information	Responsible instructor		
Remarks	<p>All students will take part in a site excursion and visit a directly related project. The travelling will be limited; within or near to the Netherlands.</p> <p>The studio is not available for MSc 2 students.</p> <p>MSc 1 students are required to also enrol in Architectural Studies (AR1AD030) and Architectural Reflections (AR1AD040).</p>		
Period of Education	Semester, assistance hours approx. 112, self study hours approx. 224.		
Concept Schedule	<p>Week 1.1 ethics workshop monday morning (Mandatory) Week 1.6 Start Studio (Mandatory) Week 2.10 Presentation</p>		
Leerstoel	Form and Modelling studies		
Minimum aantal deelnemers	15		
Maximum aantal deelnemers	32		

AR1AD030	Seminar Architectural Studies	3
Responsible Instructor	Ir. P.S. van der Putt	
Course Coordinator	Ir. P.S. van der Putt	
Contact Hours / Week x/x/x/x	28 hours per quarter	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Course Contents	The seminar Architectural Studies focuses on adopting an academic attitude in order to describe, analyse and interpret an historical or contemporary housing project. Students learn to collect, select and analyse the proper materials as well as modes of expression to present their case study according to the required point of view. The courses Architectural Studies is combined with Architectural Reflections (Ar1Ad040) and upon completion the same grade will be awarded for both courses. The contents of the seminars are closely related to the MSc 1 studios of the chair of Architecture and Dwelling.	
Study Goals	Upon completion of the course the student should be able to: distinguish between different modes of expression when describing, analysing or interpreting an architectural object; visually and verbally present an architectural object according to a specified position; make appropriate analytical drawings of an architectural object, using the techniques presented in the provided literature; draw intelligently and in accordance with academic standards; express an original idea about an architectural object; perform pointed literature and archival research into an architectural object; reflect on drawing exercises by others.	
Education Method	Seminar: 20 hours Independent study: 64 hours	
Literature and Study Materials	Literature list to be announced at the start of the seminar.	
Assessment	Research report and presentation	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1AD040	Seminar Architectural Reflections	3
Responsible Instructor	Ir. P.S. van der Putt	
Course Coordinator	Ir. P.S. van der Putt	
Contact Hours / Week x/x/x/x	28 hours per quarter	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Course Contents	The seminar Architectural Reflections focuses on adopting an academic attitude in order to describe, analyse and interpret an historical or contemporary housing project. Students learn to collect, select and analyse the proper materials as well as modes of expression to present their case study according to the required point of view. The courses Architectural Studies is combined with Architectural Studies (Ar1Ad030) and upon completion the same grade will be awarded for both courses. The contents of the seminars are closely related to the MSc 1 studios of the chair of Architecture and Dwelling.	
Study Goals	Upon completion of the course the student should be able to: distinguish between different modes of expression when describing, analysing or interpreting an architectural object; visually and verbally present an architectural object according to a specified position; make appropriate analytical drawings of an architectural object, using the techniques presented in the provided literature; draw intelligently and in accordance with academic standards; express an original idea about an architectural object; perform pointed literature and archival research into an architectural object; reflect on drawing exercises by others.	
Education Method	Seminar: 20 hours Independent study: 64 hours	
Literature and Study Materials	Literature list to be announced at the start of the seminar.	
Assessment	Research report and presentation	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

Starting Course MSc1

ARX071	Workshops Faculty of Architecture and the Built Environment	1
Responsible Instructor	Dr.ir. R. Cavallo	
Contact Hours / Week x/x/x/x	X / 0 / 0 / 0	
Education Period	1	
Start Education	1	
Exam Period	none	
Course Language	English	
Course Contents	<p>All new MSc students of the Faculty of Architecture and the Built Environment will start the academic year 2018-2019 with a 3-day workshop programme on 30 & 31 August and 3 September 2018.</p> <p>The programme is developed in cooperation with TPM colleagues of the section "Ethics & Philosophy of Technology". With a mix of lectures, workshops and sessions guided by teachers of the faculty, you will be introduced to (design) ethics, scientific integrity and intercultural communication.</p> <p>With these workshops you will make a first start to cover the ethics engineering learning goals of the MSc programmes. Further, we wish to enhance the interaction between all new students, both Dutch and International, and to introduce you to settings, methods and procedures of the faculty.</p> <p>Participation in the workshops is mandatory for all students starting their MSc 1 programme in September.</p>	
Study Goals	- The student has a basic understanding of moral sensibility, moral analysis skills, moral creativity, moral judgement skills, moral decision-making skills and moral argumentation skills.	
Education Method	Lectures, workshops, role playing game, assignment	
Assessment	Workshops attendance Assessment: V (passed) or NV (failed)	
Special Information	<p>The academic year will start with a three day workshop programme. With a mix of lectures, workshops and sessions guided by teachers of the faculty, you will be introduced to (design) ethics, scientific integrity and intercultural communication. With these workshops you will make a first start to cover the ethics engineering learning goals of the MSc programmes. Further, we wish to enhance the interaction between all new students, both Dutch and International, and to introduce you to settings, methods and procedures of the faculty. The workshops will lay the foundation for your master studies. It is highly recommended for both Dutch and International students to participate in this programme and you will be granted 1 EC after following the whole programme. This EC will be used in your electives list Master 2/3.</p> <p>For more information see website: https://www.tudelft.nl/studenten/faculteiten/bk-studentenportal/onderwijs/master-of-science/workshops-master-students/</p>	
Period of Education	3 days	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

MSc 2

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

Compulsory

AR2A015	Delft Lectures on Architectural Sustainability	3
Responsible Instructor	Ir. P.G. Teeuw	
Responsible Instructor	Prof.dr.ir. A.A.J.F. van den Dobbelsteen	
Course Coordinator	Ir. P.G. Teeuw	
Contact Hours / Week x/x/x/x	14 hours per quarter	
Education Period	1 3	
Start Education	1 3	
Exam Period	1 3 4	
Course Language	English	
Required for	Compulsory MSc2 course for the variant (track) Architecture of the master Architecture, Urbanism and Building Sciences.	
Course Contents	This lecture series emphasizes the possibilities of architecture itself as a means to promote sustainable development. Architecture as a tool to create a more sustainable world. Rather than focus on added sustainable technologies, this course searches for architects possibilities to design good sustainable architecture and a smart organisation. A 'sustainability' driven design attitude should become a second nature for students.	
Study Goals	The student: - Has an overall understanding of the factors associated with: sustainable development related to architectural design. - Has an understanding of the architects responsibilities towards sustainable design. - Is able to position him or herself in matters concerning the relation between sustainable development in general and architecture in particular. - Is capable to formulate possible architectural solutions for building-related environmental issues and has an understanding of their social, ethical and economic dimensions.	
Education Method	Lectures and debate	
Literature and Study Materials	- Reader Delft Lectures on Architectural Sustainability; edition course year 2018-2019, September 2018 (Brightspace) - Jón Kristinsson, Integrated Sustainable Design, Delft/Deventer 2012 - Required reading for the exam: Chapters 2, 3, 4, 5, 8, 9, 10 (Bouwshop) - Anke van Hal, The merger of interests, Breukelen 2009 - Required reading for the exam: up to and including page 17 (Download from the internet) - Anke van Hal, The merger of interests 2.0, Breukelen 2014 - Required reading for the exam: Chapter II and III (Download from the internet) - Some parts of the website http://www.urbangreenbluegrids.com as links included in the reader; edition course year 20182019, September 2018 (Brightspace) - Some articles of the book Circulariteit op weg naar 2050? red. Peter Luscuere 2018 (download from the internet)' pages indicated in the reader; edition course year 20182019, September 2018 (Brightspace)	
Assessment	Written exam	
Special Information	The maximum marking period is 15 work days.	
Period of Education	Quarter	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

Compulsory Choice

AR2A010	Architectural History Thesis	6
Responsible Instructor	Prof.dr.ing. C.M. Hein	
Course Coordinator	Prof.dr.ing. C.M. Hein	
Instructor	Drs. C.A. van Wijk	
Instructor	Dr.mr. E. Korthals Altes	
Instructor	Dr. H.D. van Bergeijk	
Instructor	Dr. M.T.A. van Thoor	
Instructor	Dr. R.J. Rutte	
Contact Hours / Week x/x/x/x	10 hours per quarter	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	Research writing:	
	<p>The student:</p> <ul style="list-style-type: none"> - Demonstrates a general historical understanding of the architecture profession and the role of the architect in society. - Can apply broad knowledge of the history and theory of architecture and related art forms and the humanities, as well as of the social and cultural developments relevant to architectural design. - Has developed appropriate academic writing skills. For TU Delft BSc graduates, a finished AC3 paper should have provided them with skills in planning and developing a research project, critical and responsible use of sources, and logical argumentation. These skills will be applied and expanded during this course. <p>Language skills:</p> <ul style="list-style-type: none"> - The student has appropriate English language skills. <p>If in doubt, the student should consult the OpenSourceware made available through the following links:</p> <p>https://learn.saylor.org/course/view.php?id=42</p> <p>https://learn.saylor.org/course/view.php?id=43</p> <p>These links lead to the English courses offered for free to all by the online Saylor Academy.</p> <p>Please Note: Any issues regarding research skills or language capacities will have to be addressed before the start of this course, and will require serious commitment by the student. The language courses are extensive and the student will not be able to combine them with the normal thesis workload during the semester.</p>	
Course Contents	<p>The history thesis (geschiedeniscriptie) is a required independent research project in the Master 2. It may deal with architecture, urbanism, the visual arts, design and photography, film or literature. It provides students the opportunity to hone their research skills on a historical topic. If the focus is on architecture, the research can also be of a typological kind, for example on a particular type of building, preferably not through the centuries but concentrating on a particular period or aspect. If urbanism is the subject matter, the themes may vary from the regional to the neighborhood scale, design and decision making processes, the role of politics, theories (ranging from functionalism to morphological approaches, from programmatic aspects to ideas about the creative classes and gentrification). It may also be a topographical / territorial topic, where appropriate in combination with other aspects. Finally it can regard also the investigation of an abstract topic: rhythm, scale, theory of proportions, ornamentation, eclecticism and monumentality, etc. in which an historical point of view is dominant.</p> <p>Using mixed methods from archival research and oral history to close reading of visual and textual analysis students critically examine a topic of their own choosing, producing a substantial research paper based on a clear historical perspective. This analytical and conceptual experience forms an important complement to the design&#8208;based education of the master in architecture. Writing a history thesis offers students a unique opportunity to pursue a research on a specific topic and requires students to work independently. Building on historical knowledge and research skills gained in introductory and advanced courses, students focus on primary materials and pursue an original question. They develop a complex argument and grapple with multiple data sets and interpretations. Collective and individual meetings with tutors provide a framework for the production of an original, well&#8208;written essay of about 9000 words. Students need to be familiar with library catalogues and search engines. The essays are required to demonstrate superior and consistent understanding of scientific writing (i.e. footnotes, bibliography, front and back matter). topics have to be approved by the supervisor who has to be a member of the Chair History of Architecture and Urban Planning. The topic has to be discussed with the supervisor prior to commencing. Sometimes teachers will offer a workshop.(See Blackboard).</p>	
Study Goals	<p>Learning objectives</p> <p>After completion of the course the student:</p> <ul style="list-style-type: none"> - Exhibits in depth knowledge regarding a specific field of study within architecture, urbanism, art, and or media. - Is able to plan and develop a scientific research project. - Is able to develop a critical and logical argumentation from a scientific research question based on primary sources. - Is able to evaluate, interpret and make proper reference to available sources. - Is able to build on existing knowledge and develop new knowledge. 	
Education Method	<p>Thesis supervision: 8 hours</p> <p>Independent study: 158 hours (a day in the week has been reserved for working on the thesis)</p>	
Literature and Study Materials	Blackboard	
Assessment	Thesis (For more information - length, references, use of literature and other sources - see blackboard).	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Quarter 1 and quarter 3	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR2AT030	Architecture Theory Thesis	6
Responsible Instructor	Dr.ir. H. Sohn	
Course Coordinator	Dr.ir. H. Sohn	
Instructor	Dr. S.A. Read	
Instructor	Dr.ir. A. Radman	
Instructor	Dr.ir. H. Sohn	
Instructor	Dr.ir. S. Kousoulas	
Contact Hours / Week	14 hours per quarter	
x/x/x/x		
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Required for	As per MSc2 Architecture program requirements.	
Expected prior knowledge	Students are expected to have developed a specific interest in Architecture Theory, which includes previous reading and some research in this field. Previous writing on theoretically driven topics is highly recommended.	
Summary	The Architecture Theory Thesis course offers students the possibility to explore and engage the rich conceptual and theoretical dimensions of architecture through the development of theoretical arguments and intensive research on a topic of their own choice. A free thematic allows students to conduct individual, independent research on issues and concerns that matter to them, thus offering them the opportunity of deepening their knowledge and expertise on topics which are close to their interests and passions. The focus in all cases, however, will be placed on developing the theoretical aspects of these topics.	
Course Contents	The Architecture Theory Thesis course is designed to guide participating students through the different stages of academic research and writing, aiding them in the identification of the theoretical dimensions and frameworks of their selected research topic and 'problématique', offering them relevant and timely feedback and support on their progress throughout the term. The tutors involved in this course assist students in the formulation of sound problem statements, research questions and argumentation lines towards the production of qualitative theoretical Masters' Theses.	
Study Goals	Although students are required to bring their own research passions and topics of interest to the course, we encourage students to orient these topics within two general domains or areas of specialization: 1. Architecture and political economy: Dealing primarily with research on the systemic and scalar complexities of (power) relations, forces, flows and networks, focusing primarily on their impact on -and relationship to- the (built) environment. Further angles include research on geo-politics, bio-politics and contemporary political-economy through critical and speculative investigations on the spatial, social and material transformations and consequences that these unleash across multiple scales, levels and domains. Possible themes, topics and approaches are: critical/speculative approaches to contemporary urbanisation; territorial & material flows: refuge & migration; metabolic/planetary urbanism; socio-material and spatial practices: resistance, subversion, transgression, social movements; etc. Key thinkers: David Harvey, Neil Smith, Peter Marcuse, Neil Brenner, Henri Lefebvre, Erik Swyngedouw, Andy Merrifield, Matthew Gandy, Manuel Castells, Saskia Sassen, Michel Foucault, Slavoj Zizek, Loic Wacquant, among many others. 2. Architecture and libidinal economy: Research topics dealing primarily with issues related to matter and image, and the means and techniques of production in architecture. Mainly focused on pluralist approaches and speculative theory methodologies, and philosophical inquiries. Themes include the social effects and human affects of technological developments on the mode and means of conceiving, developing and producing cultural objects, artifacts and/or architecture. In other words, research on the material and immaterial processes and productions of things and images and their relation to experience, perception and cognition. Key words or concepts: technology, media, materialism/new-materialism, radical empiricism, speculative realism, ecological thinking, affordance, biopower/noopower, affect theory, complexity theory, geometry, space, time, memory, perception & experience of space. Key thinkers: Gilles Deleuze, Felix Guattari, James J. Gibson, Brian Massumi, Manuel DeLanda, Katherine Hayles, Henri Bergson, Martin Heidegger, Bruno Latour, Katherine Malabou, Jane Bennett, Karad Barad, Rosi Braidotti, Stanford Kwinter, among many others.	
Education Method	Upon completion of this theory course the participants will: have a solid base of knowledge on recent literature in the humanities and the social sciences and their relation to architecture practice and theorization. the appropriate knowledge of the theory of architecture and related art forms as well as of the social and cultural streams of relevance for architectural design. have developed in-depth knowledge regarding the specific field of study relating to architecture, urbanism, art, and/or media. have acquired knowledge and practice on academic research and writing skills, and will be able to apply these in theoretical argumentation and the formation of discourse. have developed a consistent and cohesive research methodology by distinguishing between a problem statement, an argumentation paper and fully developed research paper will have acquired understanding of the societal, cultural, technological and ethical dimensions and implications of conducting research on architecture	
Education Method	The Architecture Theory Thesis course is based primarily on independent self-study. It nevertheless offers students sufficient and qualitative contact-time at the early stages through the Introduction Lecture and two group meetings in which students are encouraged to introduce and discuss their topics and theoretical frameworks with their peers and tutors. The exchange of peer-reviews and feedback at this stage offers students a solid point of departure. After the group meetings in the beginning of each term, students develop their work independently. The progress is checked and discussed at regular intervals, guidance is offered through written feedback from the tutors, followed by individual consultation moments, when students can discuss their work with tutors in person. Since this course is based on a self-study format, feedback and guidance are offered on the progress made by the students, who take full ownership of their work. Tutors assist, encourage and advise students in their research and writing, and accompany them throughout the development of their Theses within one semester. Preparatory Phase: Self-study	

Formulation of Abstract

Introductory Phase:

Contact-time

Introduction Lecture: course introduction

Group meetings (2): tutor-led seminar-type discussions and peer-reviews

Problem Statement & Research Questions

Preliminary Reading List

Research-Writing Phase:

Self-study periods

First & Second Drafts

Feedback & Consultations

Final Thesis

For more information please contact the course coordinator.

Course Relations

This course is a required choice-course for MSc1/2 curriculum that awards 6 ECTS upon successful completion.

Accreditation is required for P2 registration, hence we urge students to complete this course prior to MSc3 enrolment!

This course is highly compatible with the Architecture Theory Design Studio Agential Materialisms (AR2AT020) offered only in Spring terms Q4. Students wishing to follow both courses in one term are asked to enrol in the assigned period Q1/3 and Q4.

For questions please contact the course coordinator.

Literature and Study Materials

Part of the objectives of this course is for students to learn how to build a detailed and relevant reading list and research bibliography based on their individual thesis topic. Hence, students will largely define their consulted first and secondary sources.

Tutors will recommend relevant readings and sources during the feedback phases of the course, and upon request by students.

Prerequisites

As per MSc2 Architecture program requirements.

Assessment

This course will be assessed via a series of deliverable assignments:

Problem Statement

First and Second Progress Drafts

Final Thesis

For evaluation criteria and rubrics please consult the course information on Brightspace or contact the course coordinator.

Enrolment / Application

This course has limited enrolment and special requirements!

All interested students are requested to submit a tentative thematic research proposal (motivational abstract) to the Architecture Theory chair in order to determine the theoretical viability of the proposal in advance.

Research proposals should be uploaded on Brightspace and sent via email to the AT chair office, by the announced deadline. Students will receive an email after registration to the course. The abstract deadline will always be prior to the beginning of the course.

A concept form for the tentative thematic research proposal and further information are available upon request.

Send us an email to: AT-MS-C-BK@tudelft.nl

Note: The submission of a proposal does not guarantee acceptance into this course. Proposals that are not theoretical or that lean on clearly historical methods, will not be selected, and the students will be informed prior to the beginning of the course.

Note: Due to the seminar structure of this course students must be able to attend the introductory information lecture, and the group meetings held in the first quarter of the semester.

Students with course scheduling conflicts should not sign up for this course.

This course is not open for students following a study abroad semester.

Special Information

The maximum marking period is 10 working days from the final deadline. Marks will be registered in advance of the following academic term.

This course is equivalent to the History Scriptie. It is mandatory and awards 6 ECTS upon completion.

This course has limited enrolment, and is open to students who submit a tentative thematic research proposal with clear theoretical scope.

This course requires attendance to lectures, group meetings and consultations. Thus, students with schedule conflicts or study abroad plans are not eligible for this course.

Period of Education

Full semesters (Q1-2 & Q3-4)

Minimum aantal deelnemers 30

Maximum aantal deelnemers 75

Year
Organization
Education

2018/2019
Architecture
Master Architecture, Urbanism & Building Sciences

21 ECTS Electives

Introduction 1

The Master 2 program of Architecture consists of a total of 30 credits, of which 21 credits compulsory and 9 credits free elective.

Compulsory (total of 21 credits):

- History Thesis (AR2A010) or the Theory Thesis (AR2DSD820) of 6 credits
- The Delft Lectures on Architectural Sustainability of 3 credits
- An approved Master 2 Architecture design project (12 credits) (see list in studyguide)

Elective (total of 9 credits):

- free electives as to be found in the studyguide

There are 3 possibilities for doing the Architecture Master 2 design project:

- 1 - the Master 2 Architecture design project can be an Architecture Master 1 design project (that you have not followed yet), that you attend as an Master 2 design project (12 credits)
- 2 - a design project (12 credits) from the 'MSc 2 design project list', either a semester project or a quarter project (quarter 2 or quarter 4)
- 3 - it is also possible to participate in an (international) program of another university. For this please contact 'International Office' and Students Affairs (O&S)

The courses in this section are agreed on by the faculty Director of Education and the Master coordinator of Architecture as Architecture design projects suitable for Master 2.

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

MSc 2 Design Projects

AR0026	MEGA	12
Responsible Instructor	Dr. M. Turrin	
Responsible Instructor	Prof.ir. R. Nijssse	
Course Coordinator	Dr. M. Turrin	
Contact Hours / Week	93 hours per quarter	
x/x/x/x		
Education Period	4	
Start Education	4	
Exam Period	none	
Course Language	English	
Expected prior knowledge	Each student is expected to have knowledge about the disciplines to perform in the course. The level of the knowledge should be at least BSc.	
Summary	<p>MEGA is a collaborative integral multi-disciplinary design of a special big and/or tall building. This could be a multifunctional skyscraper or a multifunctional building with a large span, such as a stadium, a sports facility, a museum, an airport, train station or transport hub.</p> <p>The course targets master students in Architecture, Real Estate & Housing, Building Technology and Civil Engineering; and it is open to non-TU Delft students, conforming with TU Delft regulations. It can be chosen by Building Technology students in MSc2 (choice between EXTREME AR2AE010 and MEGA AR0026).</p> <p>Students work in teams. The design team of 4 to 7 students is responsible for delivering an integrated design as a multidisciplinary team; while each student is responsible for one discipline.</p> <p>Disciplines involved are: architecture, structural design, climate design, façade design, design/construction management and computational design/BIM. Sustainability runs transversally across these disciplines.</p> <p>The design process occurs in a collaborative digital design environment, supporting the workflow across the different disciplines. The collaborative digital design requires an integrated 3D approach with BIM (Building Information Modelling), performance analysis, and file to production processes.</p> <p>The workshop is very realistic and closely matches the design process of large international projects in the competition phase; it is a very good preparation and experience builder for your future career. It is highly appreciated by future employers.</p> <p>The course is supported by external international design/engineering offices. With them, the location of the project will be chosen and the brief of the design assignment will be developed. As examples from recent years, support was given by Arup and UNStudio, by ABT and Neutelings Riedijk Architecten. Examples of past collaborations include also Municipalities and Provinces, such as the City of Rotterdam, Almere and Den Haag, and the Province of Friesland.</p>	
Course Contents	<p>Disciplines:</p> <p>The team is organized on disciplines:</p> <ul style="list-style-type: none"> -Architectural Design -Structural Design -Climate Design and building services -Façade Design -Project and construction management -Computational Design <p>The disciplines are divided amongst the team members; each member is responsible for the contribution and integration of these aspects in the collective design. Students are encouraged to match their role in the team with the specialization they follow in the Master track.</p> <p>Phases:</p> <p>The course is structured in 3 phases:</p> <ul style="list-style-type: none"> -Lectures; excursion; intensive learning -Sketch design of 2-3 options; presentation of options; choice of one option -Preliminary design of the chosen option; final presentation <p>The first phase includes lectures by professors, external experts and architectural/engineering firms. During the excursion, the project site is visited. Intensive sessions allow studying and practicing group dynamics, collaborative work, computational design.</p> <p>The second phase focuses on the design of multiple options. The daily design activities are facilitated by tutors who are expert in the disciplines. Each discipline has a weekly time for individual consults. During a presentation, one design option is chosen for further development.</p> <p>The mid-term presentation is facilitated by external experts. Feedback by them and tutors inform the design and decision-making. Following, the external experts give a (public) lecture.</p> <p>After the mid-term presentation, the design option is detailed with the team, leading to the end presentation. The end presentation is an important event with external experts assessing the designs. The design is summarised in reports about each discipline.</p> <p>Site:</p> <p>The assignment has an actual site where the building is planned. Past examples are in Amsterdam, Rotterdam, London, Brussels, Guangzhou.</p> <p>Objectives:</p> <p>Collaborative design</p> <ul style="list-style-type: none"> -Working together with different disciplines (different goals and backgrounds) -Realistic design environment <p>Sustainable design</p> <ul style="list-style-type: none"> -Definition of sustainability for project -Contribution of all disciplines to holistic sustainable design -Development of low/zero/plus energy design <p>Computational Design</p> <ul style="list-style-type: none"> -Collaborative digital workflow across disciplines / BIM 	

- Parametric design strategies/methods
- Performance analysis with simulation tools
- Feedback loops between numeric assessments and geometric modelling
- Digital interaction between design, engineering, analysis, manufacturing and construction

Architectural Design

- Interaction architecture/masterplan/environmental context
- Development of architectural design concepts
- Integration of structural, façade, climate concepts into architectural design
- Integration of sustainability and construction into architectural design
- Development of preliminary design

Structural Design

- Development of structural concepts
- Development of concept design
- Evaluation of different structural systems in relation to architectural design
- Integration with architecture, façade, climate design
- Dimensioning of structural elements
- Development of preliminary design

Climate design

- Developments of climate and building services concept
- Development of conceptual design
- Evaluation of different climate and building services systems in relation to architectural design
- Integration with architecture, structure, façade
- Dimensioning of HVAC installations
- Development of preliminary design

Façade design

- Development of façade concepts
- Developments of conceptual design
- Evaluation of different façade systems in relation to architectural and climate design
- Integration with architecture, structure, building services

Project and construction management

- Control of objectives, tasks, deliverables
- Facilitation of the group process
- Prediction of income and building costs; optimisation
- Development of site management and logistics
- Development of construction methods/planning

Study Goals

The student is able to design a coherent, significant, elaborated, correct and innovative design - on mainline and on aspects on MSC 2 level.

Specified for this course:

After successful completion of the course, the student will be able to:

- work in an interdisciplinary design process;
- understand and apply discipline-related knowledge in projects for big or tall buildings.
- develop design strategies to achieve high building performances;
- integrate numeric analysis and simulations to address design choices.

Education Method

In this course, the education methods are:

- Lectures by professors and specialists
- Collaborative working sessions with other students
- Exposure to external architectural practice and external experts
- Consults with tutors
- Making presentation and receiving/integrating feedback

Special is the involvement of external practitioners and external experts linking this course to practice.

For this course several multidisciplinary teams of students are formed, which are each responsible for one integral design. Each student has a different role in the design team and is tutored by instructors specialized in her/his discipline. When possible, students take roles according to their specialization during the Master studies.

Apart from focussing on his/her own discipline, the aim for each team-member is to achieve the best integral design paying special attention to collaborative design, sustainable design and computational design.

Feedback is received during the mid-term and final presentation from the external experts and tutors.

Literature and Study Materials

More specific literature is provided at the start of the course. The literature below provides an indication on relevant general content.

Tall Buildings

Kloft, E., Eisele, J., (Ed), (2003) High-Rise Manual, Hardcover
Ng, E. (Ed.). (2010) Designing high-density cities for social and environmental sustainability. London, Earthscan.
Ali MM, Moon K. (2007) Structural developments in tall buildings: currents trends and future prospects. Architectural Science Review 50(3): 205223.
Baker WF, Korista DS, Novak LC. (2008) Engineering the worlds tallest Burj Dubai., In The CTBUH 8th World Congress Tall & Green: Typology for a Sustainable Urban Future, Dubai; 110.
Brown, N. C., & Mueller, C. T. (2016) Design for structural and energy performance of long span buildings using geometric multi-objective optimization. Energy and Buildings, 127, 748-761. Cross,P., Vesey,D., Chan, C.M., (2007) High-Rise Buildings. In Melchers, R.E., Hough, R., (Ed), Modeling complex engineering structures, ASCE.
Stylianios, D., Charitou, R., Hesselgren, L., (2006) Computational Methods on Tall Buildings - The Bishopsgate Tower, Communicating Space(s) In proceedings of eCAADe 2006, 778-785.
Almusharaf, Ayman M.; Mahjoub Elnimeiri (2010) A Performance-Based Design Approach for Early Tall Building Form Development , CAAD - Cities Sustainability, Proceedings of ASCAAD 2010, 39-50.
Kimpian, J., Mason, J., Coenders, J., Jestico, D., Watts, S., (2009) Sustainably Tall: Investment, Energy, Life Cycle., In proceedings of ACADIA 2009: reForm() - Building a Better Tomorrow, 130-143.
The Structural Design of Tall and Special Buildings, International Journal, John Wiley & Sons, Ltd
Moon K, (2008) Sustainable structural engineering strategies for tall buildings. In: The Structural Design of Tall and Special Buildings, Special Issue: CTBUH 2nd Annual Special Edition: Tall Sustainability 17(5): 895914.
Taranath, BS, (2011) Structural Analysis and Design of Tall Buildings: Steel and Composite Construction. Taylor & Francis.
Taranath, BS, (1988) Structural Analysis and Design of Tall Buildings. McGraw-Hill, New York.
Schueller, W., (1986) High-Rise Building Structures (2nd edn.) Robert E. Krieger Publication Company, USA.

Big buildings

Barnes, M., Dickson, M., (Ed.), Widespan Roof Structures, Thomas Telford, London, 2000

Hough, R., Carfrae, T., *Lightweight Long-Span Roofs*. In Melchers, R.E., Hough, R., (Ed), *Modeling complex engineering structures*, ASCE Publications, 2007

Imbert F., KathrynStutts Frost, Al Fisher, Andrew Witt, Vincent Tourre, and Benjamin Koren, (2012), *Concurrent geometric, structural and environmental design: Louvre abu dhabi*. In *Advances in Architectural Geometry*, 7790.

Kawaguchi, M., (1991) *Design problems of long span spatial structures*. *Eng. Struct.* 13, 144163.

Majowiecki, M., (2005) *Structural architecture for large roofs: concepts and realizations*. *Bautechnik*, 82(3): 147156.

Majowiecki, M. (1990) *Observations on theoretical and experimental investigations on lightweight wide span coverings*, International Association for Wind Engineering, ANIV.

Hladik, Pavel; Clive J Lewis (2010) *Singapore National Stadium Roof*, *International Journal of Architectural Computing* 8(3): 257-278

Shepherd, P., & Hudson, R. (2007) *Parametric definition of Landowne road stadium*. in: *International association of shell and spatial structures*, Venice, Italy, 2007,CD-ROM.

Hudson, R. (2008) *Frameworks for practical parametric design in architecture*. In: Pottman, H., Hofer, M. & Kilian,A. (eds), *Advances in architectural geometry*. Vienna, Austria,17-20.

Sanchez-Alvarez J, (2005) *Materializing geometry: the free-form reticulated roof structures for the new Milan Fair*. In: *Proceedings of AEC2005 Symposium*, Rotterdam, NL.

Assessment

Presentations and Reports

Assessment is twofold:

- Group assessment for integral group design based on presentations
- Individual assessment for discipline report

The students mark is a combination of the group assessment and individual assessment.

Special Information

The maximum marking period is 15 work days.

Remarks

The course is in English - spoken and written.

Period of Education

Quarter

AR0037	Studio Making	12
Responsible Instructor	Ir. H.A. van Bennekom	
Responsible Instructor	Ir. S.T. Bakker	
Course Coordinator	Ir. H.A. van Bennekom	
Education Period	3 4	
Start Education	3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	completed MSc1	
Course Contents	<p>"Studio Making" is a design studio that offers realistic design challenges, with real external partners, embedded in a series of interesting lectures and site visits. The topics and assignments will be mainly focussed on designing new ideas (based on solid research on the local needs and context) to increase and support circular processes in which demolition waste becomes an ingredient in new concrete. By doing this, the new results will therefor probably posses exiting, unexpected, new qualities and possibilities.</p> <p>TU Delft/Complex Projects is participating in an international project team of researchers, designers and builders that are seeking new applications with re-used raw materials (demolished concrete, brick and tiles). The TU Delft/Complex Projects is especially asked to participate in this international project because of its educational, research and student design qualities. "Studio Making" will be dedicated to designing new applications with recycled concrete and other raw materials, for real projects through western Europe. The sites will be visited during the course, and our designs will be discussed and evaluated with local parties and stakeholders in order to be realized.</p> <p>The Design "Studio Making" builds on the successful approach and contents of the 3ects course 'Making', in which students explore new design possibilities through hands-on experimenting and modeling with concrete, supported by lectures, site visits and design consulting.</p>	
Course Contents Continuation	<p>About 50% of primary raw materials in the EU are used in the building sector. At the same time, this building sector is also responsible for about 35% of all wastes. Within the construction and demolition wastes, components like concrete, bricks, tiles and ceramics have very high potential to be applied as recycled aggregates and sands in new types of concrete etc. However, until now, recycled materials are mostly down-cycled to be used as filling materials in infrastructure projects. Although the recycling quota in North-West Europe is more than 70%, but less than 4% is re-used for the original purpose: concrete production. To support recycles and further development of sustainable improvements, this studio will design new applications of concrete in which recycled aggregates define new qualities and possibilities</p>	
Study Goals	<p>the student:</p> <ul style="list-style-type: none"> - Has developed further skills in architectural design satisfying both aesthetic and technical / functional requirements. - During this trajectory skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology, social and human sciences. - Additionally, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and societys needs, including environmental and waste aspects. - During Master 1, 2, 3 & 4 skills are acquired by cumulation to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing. - skills are acquired to incorporate an understanding of the design process with regard to structural design, materialisation of buildings, comfort and climate control. 	
Education Method	design, tests, presentations, site visit, visiting critics	
Assessment	design and research book	
Special Information	The maximum marking period is 10 work days.	
Elective	Yes	
Tags	Challenging Design Drawing Energy & Industry Projects Prototyping Sustainability	
Period of Education	week 3.8 kick off, week 4.1-4.11 studio	
Leerstoel	CP	
Minimum aantal deelnemers	2	
Maximum aantal deelnemers	24	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR0052	Design Studio: Architecture and Urbanism Beyond Oil	12
Responsible Instructor	Prof.dr.ing. C.M. Hein	
Course Coordinator	Ir. H.A. van Bennekom	
Contact Hours / Week x/x/x/x	0/X/0/X	
Education Period	2 4	
Start Education	2 4	
Exam Period	none	
Course Language	English	
Expected prior knowledge	completed MSc1	
Course Contents	<p>An end to our petroleum-based lifestyles and the use of renewable energies will impact our cities and buildings. The Studio Architecture and Urbanism Beyond Oil argues that we have to first understand the enormous collective presence of oil in the built environment, its impact on production processes, financial flows, and associated social and cultural patterns in our everyday environment, and the long history of oils impact on our lives. Then, we can imagine the needs and spaces of the future and transform our existing landscapes, cities and buildings. The Architecture and Urbanism Beyond Oil studio starts with an investigation of how petroleum its extraction, refining, transformation, and consumption has shaped our built environment in visible and invisible ways around the world over the last 150 years. Some students have built on their history thesis exploring oil depictions in Hollywood films or evolving mental maps of oil as a foundation or design. Others have explored the historical development of sustainable architecture through the elective "Building Green." The studio identifies global landscapes of energy and oil. It maps and translates the findings into accessible visuals, with the goal to develop an architectural, urban or landscape project that address these findings and propose new uses and solutions. The studio has included analysis of the relevance of oil for the urban and architectural form of the port and city of Rotterdam. Students have imagined possible transition trajectories, notably suggesting a recuperation of the oil-dedicated spaces from the sea-side and new connections across the river. Other students have imagined the transformation of gas stations as lifestyle hubs, roads as energy generators, or floating self-sustaining cities. Design strategies developed in the studio can be applied to cities around the globe and possible research destinations including Rotterdam, Dunkerque, Philadelphia, Houston, and Curacao.</p>	
Study Goals	<p>Architectural and urban design are anchored in larger political, economic, social and cultural contexts. Students will learn how to place their design into the global context of oil as a commodity, the generator of financial flows, and as a mindset. They will do primary research on Rotterdam as a case study. They will work in groups on a chosen location and develop a project that acknowledges the larger theoretical and methodological premises of the course and that takes into account the different disciplinary backgrounds of the participating students.</p>	
	<p>The course is open to students in architecture, urbanism, real estate, heritage, architectural history, history and media studies, etc. and mirrors in its composition the nature of design practice.</p>	
Education Method	Lectures, discussions, and studio design work.	
Assessment	Grades will be based on course participation, assignments and the final project.	
Special Information	The maximum marking period is 10 work days.	
	Open for students from all Dutch institutions. External students please check: http://tinyurl.com/qam99u4	
Period of Education	Quarter	
Minimum aantal deelnemers	4	
Maximum aantal deelnemers	24	

AR0067	Architecture & Urban Design	12
Responsible Instructor	Dr.ir. M.G.A.D. Hartevelde	
Responsible Instructor	Dr.ir. R. Cavallo	
Course Coordinator	Dr.ir. M.G.A.D. Hartevelde	
Contact Hours / Week x/x/x/x	8 hours per week	
Education Period	4	
Start Education	4	
Exam Period	none	
Course Language	English	
Expected prior knowledge	Skills are acquired to incorporate an understanding of the design (process) attained with regard to architectural/urban history, theory, art and technology as well as relevant general knowledge of human sciences. Additionally, skills are acquired to incorporate an understanding of the design (process) attained with regard to the relation between buildings, public spaces and society's needs, including environmental aspects. During the trajectory of the Master 1, 2, 3 & 4 studios, the complexity of the architectural and urban design increases leading to a level fit for architectural/urban practice.	
Course Contents	<p>Interventions in the contemporary city need constantly to be grounded on sharp design approaches in order to respond adequately to the necessities of our times.</p> <p>Nowadays we meet in public atria and do shopping in malls; we move along covered walkways and go from street to street by taking shortcuts through the buildings of a city block. All kinds of buildings hybridised and became multi-functional anchors in the city serving thousands of people daily. The railway stations of today are entangled with the urban tissue, airports have become cities, conference centres and world expos temporarily change the urban composition, and museums are also leisure centres. In the recent decades, the amount and the proportion of public space within urban buildings has steadily increased, with much of it forming part of a larger interior and exterior pedestrian network. On the other hand the amount and size of public buildings within the urban context increased too, changing the way the contemporary city is constructed. However, still rarely designers approach the city as architecture or the building as urban design.</p> <p>For these reasons there is nowadays a great need of identifying the available design tools in order to plan effective future interventions in our cities. Particularly in the case of existing urban environments, design approaches require a conscious understanding of urban design as well as an adequate knowledge of changes in building typologies.</p> <p>In this design studio, architects and urban designers work together in the examination of the urban space as architectural space and the architectural space as urban space. In this experimental design project, students and staff are interested on one hand to the urban intervention in the built environment and its effect on architecture, and at the other hand to the architectural treatment of the city and its effect on urbanism.</p>	
Study Goals	<p>The student:</p> <ul style="list-style-type: none"> - understands the interrelation of architectural and urban design, to evaluate and create proposals for strategic interventions, with regard to spatial-social patterns and the culture of the city - evaluates skills in architectural and urban design to create an elaborate design proposal in typological terms related to use, ownership and meaning - creates an elaborate design proposal on the edge/overlap of both professions, satisfying formal, technical and functional requirements, including materialisation. 	
Education Method	Interactive studio work	
Assessment	Design / Research, presented in drawing form with written commentary and a model.	
Special Information	<p>The maximum marking period is 10 work days.</p> <p>The studio work includes an excursion to the site. Please, do not hesitate to inform with the course coordinators what this year's case studies is.</p>	
Period of Education	Quarter 4	

AR0072	Solar Decathlon	12
Responsible Instructor	Prof.dr.ir. A.A.J.F. van den Dobbelsesteen	
Course Coordinator	Ir. P.G. Teeuw	
Contact Hours / Week x/x/x/x	8 hours per week	
Exam Period	none	
Course Language	English	
Course Contents	<p>The Solar Decathlon is a bi-annual competition of solar homes built by universities across the world. TU Delft is also participating in this competition.</p> <p>This course is connected to active involvement of students participating in the TU Delft Solar Decathlon team. This course deals with the architectural and technical design and elaboration of the TU Delft entry to the Solar Decathlon competition.</p>	
Study Goals	<p>The student is able to design a coherent, significant, elaborated, correct and innovative design - on mainline and on aspects on MSC 2 level.</p> <p>Specified for this course; the student is able to:</p> <ul style="list-style-type: none"> - collaborate in a team with other students - work on a joint design of an energy-neutral or energy-producing house - integrate various aspects of sustainability into the design of the house - elaborate on components of the design challenge, related to architectural design, structural design and engineering, envelope design and engineering, climate design and engineering, HVAC systems, electrical systems etc. 	
Education Method	Tutorials, workshops, (mid-term) presentations, reporting, exhibiting	
Assessment	The design, report and oral presentations will be assessed by different criteria. Also the group attitude and pro-activity of the student will be reviewed.	
Period of Education	Semester	

AR0076	The New Town: Design Studio Africa	12
Responsible Instructor	M.J. Emmerik	
Responsible Instructor	Prof.dr. W.A.J. Vanstiphout	
Course Coordinator	M.J. Emmerik	
Instructor	Prof.dr. W.A.J. Vanstiphout	
Instructor	M.J. Emmerik	
Education Period	4	
Start Education	4	
Exam Period	none	
Course Language	English	
Summary	<p>This Research and Design studio is focused on one of the fastest urbanizing regions in the world: the African west coast between Cote d'Ivoire and Nigeria where more than a dozen agglomerations with millions of inhabitants are stretched over an area of approximately 500 miles. This creates an urban area with a potential coherence and accumulative value comparable to regions such as the East Coast of the United States or the Pearl River Delta in China.</p> <p>The African 500 mile city however, in contrast to its American and Chinese stretches across five countries, with different political systems, economies working at different speeds and complex relationships with each other. On an urban level, they are connected by a dynamic of urbanization due to immigration and economic growth which brings huge pressures on the livability and ecological sustainability of the area. Conversely, the urbanization process itself is hugely pressurized by the effects of climate change, making linear city between Accra and Lagos one of the areas most at risk both from the rising of the sea level, and the swelling of rivers such as the Volta and the Niger.</p> <p>But there is more holding this region together. This part of West Africa has a very old, precolonial, precolonial history of urban civilization and states, with great examples in the Dahomey and Benin kingdoms. This shared history was however hacked into pieces during colonial times, that also brought with them a series of trading posts later developing into the metropolises of today. There is, in other words a large historical heritage to be found on the ground as a cultural backbone to the 500 Mile City.</p> <p>In this research and design studio students develop Urban and Architectural design projects based on extensive fieldwork in West Africa, exploring this area through the perspective of modern new town planning and try to conceptualize and explain these conurbation as part of the present global urbanization. How can we understand these large urban areas as a physical manifestation of its various backgrounds? How can we use the design models used by architects and urban planners for new town planning in the past to deal with this rapid urban growth? What are the contemporary planning issues of the new cities of the 21st century? Can the developed and developing nations learn from each other in the planning and development of new towns? And what effects does this have on the daily lives and the economies of the regions involved?</p> <p>This course, in combination with The New Town: Lecture series (AR0023) is open for students from the master tracks in Architecture (MSc2) and Urbanism (Q4 elective). It is organized by the chair of Design as Politics in collaboration with the International New Towns Institute.</p>	
Course Contents	<p>In this research and design studio you will develop Urban and Architectural design projects based on extensive fieldwork in West Africa. We will concentrate on a massive transnational conurbation that is forming between Abidjan (Ivory Coast) and Lagos (Nigeria). We will explore this area through the perspective of modern new town planning and try to conceptualize and explain these conurbation as part of the present global urbanization.</p> <p>The aim of the studio is to understand the development of this unplanned megacity, its effects on the daily life and local economies, and to explore the role that design and new town planning might play on many different scales in this urban situation where there is no strong role for a central state.</p>	
Study Goals	<p>After successful completion of this course you are able to:</p> <ul style="list-style-type: none"> Analyze the physical manifestation of rapidly urbanizing areas in relation to the social-economic and political context in which they emerge and to transform your findings into a design brief. Develop strategic architectural or urban interventions that guide or facilitate rapid urban growth. Reflect on western planning principles and their application to the African context and visa versa. 	
Education Method	Design tutoring / Studio sessions / Presentations / Field research	
Course Relations	One meeting each week, consisting of design tutoring and collective pin-up sessions combined with extensive field research.	
Course Relations	This studio is complemented by a theoretical introduction to New Town planning (AR0033). Enrollment to this lecture series is compulsory for students participating in this studio.	
Assessment	Assessment takes place based on a design project, your attendance and participation during the field research and a final presentation. More information will follow at the beginning of the course.	
Remarks	This studio is organized by the chair of Design as Politics in collaboration with the International New Town Institute, and a number of international global parties such as the Dutch ministry for foreign affairs, UN Habitat and local universities and development agencies. For more information see: www.designaspolitics.nl and www.newtowninstitute.org	
Remarks	Participating students are required to cover additional traveling expenses for a field trip to Africa (around 1300,- for travel and accommodation.)	
Period of Education	This course starts in the second semester (spring 2018)	

AR0077	The Why Factory MSc2 Design Studio	12
Responsible Instructor	Prof.ir. W.G.M. Maas	
Course Coordinator	J. Arpa Fernandez	
Responsible for assignments	S. Gargaretas	
Contact Hours / Week x/x/x/x	0/0/0/X	
Education Period	4	
Start Education	4	
Exam Period	none	
Course Language	English	
Course Contents	<p>This course is a MSc2 studio, and is organized as a think tank. Studios at The Why Factory are content-driven design and research studios with a practical and theoretical scope. MSc2 studios are research labs and platforms that aim to analyse, theorize and construct future cities. They conduct a variety of investigations within the given world, and produce future scenarios beyond it: from universal to specific and global to local.</p> <p>MSc2 studios start with a specific brief and a statement on the future of urban life. Based on the brief, future scenarios will be developed leading to visionary, city-related designs.</p> <p>Students develop their specific approach to the brief and define the necessary scientific research. Calculations, simulations or modelling to support the studio work are elaborated in a parallel seminar: the MSc2 Future Models I seminar.</p> <p>The results of the research lead to a design project with consequent logic, convincing argumentation and illustrative and fantastic visuals.</p>	
Study Goals	<p>Upon completion of the Master 1, 2, 3 & 4 studio trajectory, the student:</p> <ul style="list-style-type: none"> - Has developed the necessary skills in architectural design that satisfy programmatic, aesthetic and technical requirements. - During the Masters trajectory, the complexity of the architectural design increases, leading to the level required for professional practice. - During this period, skills are acquired to increasingly incorporate an understanding of design processes, architectural history and theory, art, technology and human sciences. - Additionally, skills are acquired to incorporate into design an understanding of the relation between territory, buildings, spaces and societies needs, including environmental aspects. - During Master 1, 2, 3 & 4, skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing. - Together with the building technology training, during Master 1, 2, 3 & 4 skills are acquired to incorporate an understanding of the design process with regard to structural design, materialisation of buildings, comfort and climate control. 	
Education Method	<p>Atelier: 150 hours Self study: 270 hours</p>	
Assessment	Presentation	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Quarter	
Maximum aantal deelnemers	30	

AR0086	Infrastructure and Environment Design	12
Responsible Instructor	Dr. F.L. Hooimeijer	
Responsible Instructor	Dr.ir. T. Kuzniecowa Bacchin	
Course Coordinator	Dr. F.L. Hooimeijer	
Instructor	Dr.ir. T. Kuzniecowa Bacchin	
Instructor	Dr. F.L. Hooimeijer	
Contact Hours / Week x/x/x/x	0/0/0/X	
Education Period	4	
Start Education	4	
Exam Period	none	
Course Language	English	
Course Contents	<p>With urgent urban challenges such as climate adaptation, energy transition, and continued urbanisation, the urgency of integrating planning and design with urban engineering increases. The implementation of new technological interventions and the utilisation of the natural system is hampered by the lack of an integrated approach incorporating urban planning and design decisions. Meanwhile, urban and economic growth increasingly competes for infrastructure and environment, affecting the success or failure of the daily operating systems of cities and thereby urban competitiveness. The challenge is to fundamentally re-think the urban landscape in light of new technologies. The question is how to renew existing cities by integrating the parameters of the natural system, as well as technological innovations directly into urban development opportunities arising from spatial planning and design.</p> <p>In order to stimulate and design the synergy between design and engineering this course offers the possibility for architects, urban designers and landscape architects to get well acquainted with the concepts and language of civil engineers on the subject of infrastructure and environment; at the same time the civil engineers will get acquainted with the world and language of designers.</p>	
Study Goals	<p>In order to create an emerging path where synergy between the disciplines makes sure that technology becomes embedded in the design process, this course offers possibilities for both urban designers and civil engineers to get well acquainted with each others discipline. This is achieved by collaborating with the course Technology and Practice Water Management in Urban Areas at (CT5510) that elaborates on the technology of building site preparation and will show the collaborative worlds of soil and water.</p> <p>The goal of this course is that students will be able to:</p> <ul style="list-style-type: none"> Formulate their design perspective that is based in a conceptual or theoretical framework. Identify and discuss the synergy between natural conditions and technological potential and possibilities in urban environments. Analyse and design infrastructures on a regional scale and on the scale of the section. Identify and discuss the tension between public and private development in infrastructures and environments. Apply methods concerning the appraisal of sustainable urban environments and infrastructure. Demonstrate in a design the connection between the natural system and technical possibilities in urban environments. Be able to translate analyses into design and the design into a formal plan. Perform inter-disciplinary working. 	
Education Method	<p>Readings in the field of knowledge brokerage, technical entrepreneurs, landscape ecology, sustainability and urban theory for a better understanding and theoretical framing of the individual project.</p> <p>Exercises in building a theoretical or conceptual framework and translating analyses into design.</p> <p>Interdisciplinary learning by taking class with civil engineers and policy students in which understanding can be created for each others knowledge and skills, where fences between the knowledge fields can be broken down, where contacts can be made for later in professional careers. The Urban Water Management course starts in Q3 with 8 lectures of which the compulsory ones are indicated in the schedule, the others can be viewed on colleggerama. In Q 4 there is an assignment, excursion and workshop with the urban water management students.</p> <p>Workshops with professionals and with students of technical background to understand differences in language and concepts and learn to apply the technical information to the spatial context.</p> <p>Individual or group project as elaboration of the workshops.</p> <p>Project in practice: research assignment with a partner in practice to answer to the goals of this course. It needs to be with a company or institute, municipal department with a technical focus. With them you need to arrange that you work on a certain research or design project that can be done in 10 weeks, minus the time you need for the other activities in this course and your other electives. You can also take the summer months to extend the internship. The result is a report where, taking in consideration the learning goals for this course, a reflection is done on the project and/or way of working.</p>	
Literature and Study Materials	<p>Literature list is given with the course outline. It covers theory on sustainability, knowledge brokerage, eco system services, urban ecology, infrastructure and urban design.</p>	
Assessment	<p>The course results in an individual project or a project in practice. The content of individual project is:</p> <ol style="list-style-type: none"> 1) Use of theory to frame your research and design perspective. 2) Research and analyses of technical data/infrastructure of your site resulting in an environmental and infrastructure potential map. 3) Research and analyses of the surface of your site, resulting in a surface potential map. 4) Synthesis between 2 and 3 and together with 1 resulting in a (spatial) concept. 5) Concept translated in a performance based urban design that will be translated into a formal plan. 	
Remarks	<p>This course is combined with: Technology and practice Water management in urban areas CT5510 4ects</p> <p>Summary: master course on design and planning of the urban water management system. Water fluxes and relevant processes in water and soil. Storm water, surface water and groundwater drainage design (quantity and quality) in interrelation with subsidence and based on functional demands and standards. Storm water infiltration and building site preparation. Water wise spatial planning and urbanism. Water management policy development.</p> <p>Responsible Professor: Nick van der Giesen Course Coordinator: Frans van der Ven</p> <p>This course includes the course AR0093 Infrastructure and Environment Method Module. It is not possible to take both this course and AR0093.</p>	
Period of Education	Quarter	

AR0094	Bucky Lab A	12
Responsible Instructor	Dr.ing. M. Bilow	
Course Coordinator	Dr.ing. M. Bilow	
Education Period	3 4	
Start Education	3	
Exam Period	none	
Course Language	English	
Course Contents	<p>The focus of the semester is an innovative building construction or facade design for an architectural related building, this may be a part of a building, a pavillion or a facade. The task is a building component in which all the important technical and architectural aspects of a building are integrated in. The first three weeks students individually research and analyse the assignment in order to come up with an innovative concept. The remaining weeks of the semester are dedicated to a design by research process in which all the main aspects of the design, from applied mechanics, material propertie to production techniques are researched ending in an integrated final design. Computer modeling, virtual and full scale material prototyping are part of the process.</p> <p>This course is a shorter version of the already known bucky lab, so expect the same fun but in a smaller package ! We try to focus more on the construction and will reduce the building physics and structural engineering part.</p>	
Study Goals	<p>The student is able to design a coherent, significant, elaborated, correct and innovative design - on mainline and on aspects on MSC 2 level.</p> <p>Specified for this course: the student</p> <ul style="list-style-type: none"> - has an understanding of the relation between design, society, realisation, materialisation and functioning. - is able to design and evaluate building components based on their function and performance. 	
Education Method	Design consultation and computer modeling. Design by prototyping	
Assessment	Individual report of innovative concept and reports in team of two students of design by research process from concept to final design, main focus the level of integration of all the researched aspects.	
Special Information	The maximum marking period is 10 work days.	
Period of Education	summer semester starting in week 6	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR0096	EXTREME technology	12
Responsible Instructor	Prof.dr.ing. U. Knaack	
Course Coordinator	Ir. R. Schroën	
Contact Hours / Week	12 hours per week x/x/x/x	
Education Period	4	
Start Education	4	
Exam Period	none	
Course Language	English	
Course Contents	<p>The project is about building in a extreme situation, in respect to climate, location and function. Essence is the interaction between the extreme circumstances, the technical solutions, and the architecture. Extreme circumstances do request technical solutions which will be the starting point for the design development. The designer has to direct the 'engineer questions and answers', towards the articulation of the form which is based on integration of aesthetic and technology.</p> <p>"Die Architectur des 21 Jahrhunderts hat ihre Unschuld verloren, Gebaude müssen etwas leisten" Stefan Behnisch.</p> <p>In the end the student is able to understand technical solutions, to reflect on them, to applicate them and to transform them. And the student is able to design a coherent design result.</p>	
Study Goals	<p>The student is able to design a coherent, significant, elaborated, correct and innovative design - on mainline and on aspects on MSC 2 level.</p> <p>Specified for this course:</p> <p>In the end the student is able to design a healthy coherent building in extreme conditions with a focus on technical solutions: the student is able to apply, reflect and transform principles concerning climate, construction and structure.</p>	
Education Method	Design project	
Assessment	The design result including the aspects structure, climate and envelope.	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR0098	Sustainability project design and elaboration	12
Responsible Instructor	Prof.ir. M.F. Asselbergs	
Responsible Instructor	Prof.dr.ir. A.A.J.F. van den Dobbelsteen	
Course Coordinator	Ir. P.G. Teeuw	
Course Language	English	
Course Contents	This course is connected to active involvement of students participating in design teams related to practice. This course deals with the architectural and technical design and elaboration.	
Study Goals	The student is able to - collaborate in a team with other students - work on a joint design of a specific (building) design project - integrate various aspects of sustainability into the design of the project - elaborate on components of the design challenge, related to architectural design, structural design en engineering, envelope design and engineering, climate design and engineering, etc.	
Education Method	Tutorials, workshops, (mid-term) presentations, reporting, exhibiting (if applicable)	
Assessment	Portfolio of the design, report and oral presentations will be assessed by different criteria. Also the group attitude and pro-activity of the student will be reviewed. All depending on the specific project .	
Period of Education	Varies.	

AR0149	ON SITE, Landscape architectonic explorations	15
Responsible Instructor	Dr.ir. I. Bobbink	
Course Coordinator	Dr.ir. I. Bobbink	
Education Period	4	
Start Education	4	
Exam Period	none	
Course Language	English	
Required for	students need to be master students	
Expected prior knowledge	design skills	
Summary	Please check the presentations on the Q4-free choice projects for more specific information about the site and the exact theme - this differs every year. In the course, we will study on how to define identity and how to transform ordinary spaces into specific places. We will experiment with different methods and tools. Depending on the theme we might operate as one group.	
Course Contents	In this course, you will learn how to analyse, interpret the spatial identity of a site and translate it into a landscape architectonic design. The scale of the assignment can differ from a garden to an (urban)landscape. Landscapes and cities with a strong identity are highly valued by people. Identity, heritage, continuity and transformation are important notions of todays design practise. In the course, we will study on how to define identity and how to transform ordinary spaces into specific places. Through fieldwork, the site will be studied across experimental analysis methods and techniques, also borrowed from other disciplines, like social sciences and art. The experimental analysis deals with questions related to a site exploration and notation and how to construct a design concept. It depicts the subjective, dynamic and intangible characteristics of the place such as: processes, cultural activities, memories, stories, experiences, rituals by for examples sensorial perception, tracing narratives, investigating historic sources, mapping spaces in various ways and working with experimental photography, etc. As a frame, the course offers an interdisciplinary debate on the theory of place making which feeds the design experiment. These design experiments can become models, films or real constructions in the public realm. The course will involve third parties, for example ongoing research in the section of landscape architecture, assignment from practise or can be part of an event like the Oerol festival on Terschelling etc.	
Study Goals	- to acquire knowledge of the physical form of a specific landscape; - to acquire and use theoretical knowledge on place making; - to study, visualise and edit the topography and spatial identity of a landscape (experimental analyses); - to build a relationship among landscape architecture and other fields of science like geology, archaeology, ecology, history, anthropology, and other creative disciplines like art, architecture and urbanism; - to design a landscape architectonic space.	
Education Method	studio work (experimenting) interactieve lectures workshops fieldwork	
Assessment	oral presentation with the help of: drawings models films or real constructions in the public realm	
Period of Education	Quarter 4	
Minimum aantal deelnemers	15	
Maximum aantal deelnemers	15	

AR0225	MSc2 Studio: Urban (Re)Development Game	12
Responsible Instructor	Y. Chen	
Course Coordinator	Y. Chen	
Instructor	Prof.dr. E.M. van Bueren	
Instructor	Dr.mr. F.A.M. Hobma	
Instructor	Mr.dr. P. Jong	
Instructor	Dr. C. Maat	
Instructor	Dr.ir. M. Spaans	
Instructor	Dr.ir. P.L.M. Stouten	
Instructor	Ir. H.W. de Wolff	
Instructor	Dr.ir. R. Binnekamp	
Instructor	Dr.ir. S. Zijlstra	
Instructor	Dr.ir. L. Volker	
Instructor	Dr.ir. R.S. van der Kuij	
Instructor	Dr.ir. T.A. Daamen	
Instructor	Dr.ir. E.W.T.M. Heurkens	
Instructor	Prof.dr. P.J. Boelhouwer	
Instructor	Drs. P.W. Koppels	
Instructor	Dr.ing. G.A. van Bortel	
Instructor	Y. Chen	
Instructor	Dr.ir. E.H. Stolk	
Instructor	Dr. W.J. Verheul	
Instructor	Ir. L.G.C. Heijnders	
Instructor	Dr. I. Nase	
Contact Hours / Week	0/0/0/X	
x/x/x/x		
Education Period	4	
Start Education	4	
Exam Period	4	
Course Language	English	
Expected prior knowledge	Semester 1 of Master course from Faculty of Architecture and the Built Environment	
Summary	The course is meant for master students from the department of Architecture and Urbanism who have not followed any economic course. During this unit course the theory and the practice of managing urban (re)development processes is explored through lectures, role-playing simulation in urban (re)development project at area scale, as well as at the portfolio and object scale. A third component is finance.	
Course Contents	The unit of course aims to train students to grasp an integral approach when managing urban (re)development both at the urban area scale and at the portfolio and object scale. Through a role-playing simulation project, students will be given design assignments that drive them to (re)develop a complex urban location with both residential and non-residential elements.	
Study Goals	<p>The assignment aims at drawing up a development plan for the location. The students, through this exercise, will play the roles of local authorities and private actors as well as third parties of the area and negotiate in their respect roles to reach an optimal solution. Students will conduct feasibility analysis of a particular real estate objective at the portfolio and object scale.</p> <p>This unit will equip students with sufficient skills to deal with the assignment in the simulation with a series of lectures and sessions of fieldwork, role assistance and group supervision. Students will learn about the context, goal, actors and means of realisation related to each phase of the urban area development cycle. In this process, students have to consider how to make a balance between market demand, spatial quality requirement with available means.</p> <p>The unit aims to enable students to:</p> <ul style="list-style-type: none"> - understand the changing context of global and local environment and economic, social and cultural elements which contribute to various urban problems - understand the context, content, players and means of implementation during the cyclic phases of urban area development; identify positions, objectives and means as well as strategies of involved parties in different phases - analyze the social-economical and urban context as well as the status and function the area can possibly achieve in the future - set up functional programs for the area in question; identify spatial possibilities and, the feasibility and financial consequences of investments; develop institutional and financial plans for different phases in order to manage and oversee the development design and implementation process, thereby effectively integrating the input of the various actors in the project - conduct feasibility studies of real estate portfolio strategy with involved and/or potential stakeholders and the cost-benefit analysis of a particular building block at the object level - integrate multidisciplinary knowledge through teamwork, negotiate and communicate with different parties, present project results and reflect the development process with an analytical report 	
Education Method	<p>The program of The Urban (Re)development Game comprises three parts:</p> <ul style="list-style-type: none"> - Theory: the knowledge of the theory on managing urban development is acquired through lectures and literature study - Practicum: the practice skills are acquired through role-playing in a management game, with support from role lectures, supporting literature and consultation provided by role assistance and group supervision. Students are asked to work on a master plan of a specific location and then examine its feasibility plan of a particular role at portfolio and object level. -Real estate finance: the knowledge of finance is acquired through lectures and literature study 	
Literature and Study Materials	<p>The compulsory literature for Theory is:</p> <p>Franzen, A., Hobma, F., de Jonge, H. and Wigman, G (eds) (2011) Management of Urban Development Processes: governance, design, feasibility. Amsterdam: Technpress.</p> <p>Adams, D. & S. Tiesdell (2012), Shaping Places: Urban Planning, Design and Development. London: Routledge.</p>	
Assessment	<p>Other digital compulsory and supporting literature is available from the blackboard and is updated yearly.</p> <p>The result will be determined by:</p> <ul style="list-style-type: none"> - the theory component, assessed through individual 3,5 hour exam - the practice component, assessed through the quality of design assignment, the quality of presentation performance, the quality of argument and reflection in the end report - The finance component, assessed through assignment and exam 	

Exam Hours	Theory: 3,0 hours
Special Information	The maximum marking period is 10 work days.
Period of Education	Quarter

AR0681	Heritage and Architecture Design Studio: Research and architectural design	12
Responsible Instructor	Ir. W.L.E.C. Meijers	
Responsible Instructor	Prof.ir. W. de Jonge	
Course Coordinator	Ir. W.L.E.C. Meijers	
Instructor	Ir. W.L.E.C. Meijers	
Instructor	Dr. S.A. Stroux	
Instructor	Ir. A.C. de Ridder	
Instructor	Ir. W. Willers	
Contact Hours / Week x/x/x/x	8 hours per week	
Education Period	3 4	
Start Education	3	
Exam Period	none	
Course Language	English	
Course Contents	The chair of Heritage & Design is concerned with re-designing and researching buildings of significance in cultural-historical context. In this studio the cultural, historical, societal and urban context of a built structure are analysed and interpreted in relation with architectural and technical features. Historical development, urban context, typology, materialisation, technical elaboration and related literature are the main issues in a synchronic method of analysing and re-designing. Students individually create a re-design that shows a meaningful translation of an intervention strategy into the spatial, functional, urban, material and technical design. The design choices are based in an understanding in relation to cultural value.	
Study Goals	Upon completion of the Master 2 studio the student is able to: - draw conclusions from analyses and present these in an academically substantiated and comprehensive way, - define a relevant design brief and create an architectural redesign for a building or ensemble that he/she has chosen as an etude, - apply professional knowledge and design tools related to architecture, building technology and cultural value, - focus on moral sensibility, analysis, creativity and judgement skills regarding architectural ethics - explain and reflect on meaning and design development with relevant presentational means - communicate design ideas at an advanced level through verbal presentations, visual and written media.	
Education Method	Design coaching in studio during educational weeks. The design studio features individual and group tutorials, and study specific to the design project.	
Literature and Study Materials	To be announced via the tutor and/or the coordinator and/or Brightspace.	
Assessment	Presentations will be held during the semester and a final presentation at the end of the semester. Drawings, texts, models.	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Q1 / Q2 / Q3 / Q4: semester weeks 1.6 - 2.10 / 3.6 - 4.11	
Leerstoel	Heritage & Architecture	
Maximum aantal deelnemers	45	

AR0896	Van Gezel tot Meester		21
Responsible Instructor	Ir. E.J.G.C. van Dooren		
Responsible Instructor	L.A.M. Willekens		
Course Coordinator	Ir. E.J.G.C. van Dooren		
Contact Hours / Week x/x/x/x	160 hours per semester		
Education Period	1 2		
Start Education	1		
Exam Period	none		
Course Language	Dutch		
Course Contents	<p>Didactiek in ontwerpprojecten In een stage (Bachelor eerste jaar) leer je onder supervisie het vak van ontwerpbegeleider; de ervaring en problemen die je opdoet in de stagegroep kun je terugkoppelen in de onderwijsgroep. In enkele werkcolleges wordt onderzocht hoe studenten te begeleiden in het leren ontwerpen.</p> <p>Ontwerpvaardigheid en ontwerpproces In een aantal ontwerp oefeningen wordt het ontwerpproces expliciet onderzocht. Door het ontwerpproces enkele keren te doorlopen en specifiek te bestuderen wordt inzicht verkregen in meer algemene principes tijdens het ontwerpen en de eigen, individuele inbreng; ook valkuilen kunnen zo aan het licht komen. Zoals een topsporter op onderdelen en het geheel traint om tot meesterschap te komen, zo kan een ontwerper ook zijn eigen ontwerpproces trainen. Door het kanaliseren van gewoontes en het bewust worden van essentiële ontwerpmomenten kom je tot meesterschap in het ontwerpproces.</p>		
Study Goals	<p>De student is in staat een coherent, betekenisvol, uitgewerkt, juist en innovatief ontwerp te maken en onderzoek te doen - op hoofdlijn en in details - op Msc 2 niveau.</p> <p>Specifiek voor deze cursus: de student</p> <ol style="list-style-type: none"> 1. heeft inzicht in het (eigen) ontwerpproces en in het (ontwerp)docentschap 2. is in staat korte ontwerp opdrachten te doen en heeft de basisvaardigheden als (assistent) ontwerp docent 3. is in staat een kort onderzoek te doen naar het (eigen) ontwerpproces en de aspecten van het ontwerpdocentschap 		
Education Method	<p>- stage als assistent-begeleider in een eerstejaars ontwerpproject - ontwerponderwijs op atelier (meerdere ontwerp opgaves) - enkele werkcolleges</p> <p>Kennis en toepassing zijn tijdens het leren met elkaar geïntegreerd. De cursus is opgebouwd uit een groot praktijk gedeelte (ontwerpen / begeleiden) met op een aantal momenten compacte input van kennis en theorie.</p> <p>Het ontwerp onderwijs vindt in principe plaats op dinsdag en vrijdag middagen, en een aantal werkcolleges op woensdagmiddag - wijzigingen in verband met de stage voorbehouden De stage vindt plaats in het tweede kwartaal.</p>		
Assessment	<p>Didactiek stageverslag waarin opgenomen een observatie en een reflectie (9 studiepunten). Ontwerpresultaten en reflectie op ontwerpproces (12 studiepunten).</p>		
Special Information	The maximum marking period is 10 work days.		
Period of Education	Semester		
Maximum aantal deelnemers	hangt af van beschikbare stageplaatsen		

AR2AD010	MSc2 Dwelling design studio 'Global Housing'	12
Responsible Instructor	Ir. H.A.F. Mooij	
Course Coordinator	P.S. van der Putt	
Instructor	Prof.ir. D.E. van Gameren	
Education Period	3 4	
Start Education	3	
Exam Period	none	
Course Language	English	
Course Contents	The MSc 2 AR2AD010 Global Housing Studio focuses on the worldwide issue of affordable mass housing schemes. The assignment involves designing a housing project, with the aim of providing solutions that cater for the creation of socially and ecologically sustainable urban environments as an alternative to current practices of large-scale developments, public and private, based on models. Participating in the studio requires a site visit to Ahmedabad, India of approximately two weeks.	
Study Goals	Learning Goals MSc 1/2 GLOBAL HOUSING	
	After completion of this course the students is able to:	
	1. Recognise and explain morphological and typological qualities of urban housing neighbourhoods .	
	2. Formulate a design strategy for affordable housing in relation to densities, multiple user groups, access & circulation, privacy & community and patterns of daily life.	
	3. Design and develop an urban plan for affordable housing on a proposed site.	
	4. Design and develop an urban housing neighbourhood accomodating the various relations of the design strategy.	
	5. Design and develop different dwelling types in relation to specified needs and usability.	
	6. Identify and explain the qualities of the proposed design in relation to project references and experience.	
	7. Identify appropriate building techniques and construction systems to be employed as part and parcel of the design proposal.	
	8. Produce meaningful visual and physical outputs to communicate the project to an audience of experts.	
Education Method	Tutoring of the design progress in the design studio. Workshop week	
Assessment	Examination takes place in the form of a mid-term and final oral presentation of design and analysis in drawings and images, followed by an oral examination in questions and answers.	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Education starts in week 3.6 and ends in week 4.11	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR2AI010	Interiors Buildings Cities MSc2 Design Project	12
Responsible Instructor	Prof. D.J. Rosbottom	
Course Coordinator	Ir. S. Pietsch	
Instructor	Ir. M.E. Stuhlmacher	
Instructor	Ir. L.M.M. de Wit	
Instructor	M. Pimlott	
Instructor	D.H.G. Somers	
Instructor	Ir. S. Pietsch	
Instructor	Ir. J.S. Zeinstra	
Instructor	Ir. drs. E.P.N. Schreurs	
Instructor	S.S. Mandias	
Instructor	Prof. D.J. Rosbottom	
Contact Hours / Week	4 hours per week	
x/x/x/x		
Education Period	1	
Start Education	2	
Exam Period	3	
Course Language	English	
Summary	<p>The Chair of Interiors Buildings Cities is concerned with making buildings, in places, for people. It conceives of the city, at each scale, as a work of architecture and, hence, the responsibility of the architect. This developing discussion of the chair is contextualised through an annual theme.</p> <p>The MSc2 course, Thinking through Making, encompasses design research investigations into thinking about, making and representing architecture, up to and including 1:1 scale.</p>	
Course Contents	<p>The MSc2 programme is a platform for special research and design projects proposed by members and associates of the Chair of Interiors Buildings Cities. At the heart of each of these projects, renewed every semester, is a research question or opportunity that yields possibilities for responses through design, and realised in tangible artefacts or models.</p>	
Study Goals	<p>Upon completion of the Master 1, 2, 3 & 4 studio trajectory the student:</p> <ul style="list-style-type: none"> - Has developed the skills in architectural design satisfying both aesthetic and technical / functional requirements. During the trajectory the complexity of the architectural design increases leading to a level fit for architectural practice and a training period for professional accreditation as architect. - During this trajectory skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology and human sciences. - Additionally, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and society's needs, including environmental aspects. - During Master 1, 2, 3 & 4 process skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing. - Together with the training with regard to aspects of building technology, during the Master 1, 2, 3 & 4 process skills are acquired to incorporate an understanding of the design process with regard to structural design, materialization of buildings and interiors, comfort and climate design. <p>A specific description of the aims of the studios will be published in the Studio Manual, to be distributed at the beginning of the course.</p>	
Education Method	<p>The design studio features individual and group tutorials, and study specific to the design project as well as several dedicated thematic exercises, internal lectures and seminars that pertain to and inform the subject.</p>	
Literature and Study Materials	<p>to be announced upon beginning of the course</p>	
Assessment	<p>Assessment will focus on the research work undertaken by the individual student within the set theme; the specific research questions raised within; the specific design study that responds to those questions; the representation of that study in a physical artefact made by the student.</p> <p>Products: models up to 1:1 scale; drawings / texts if applicable</p> <p>The project will be assessed on:</p> <ul style="list-style-type: none"> - the position that is formulated with regard to the brief and its context; the contribution to a collective discourse. - the appropriateness of the intervention with respect to the assignment; the feasibility and translatableity of the idea into a physical manifestation. - aesthetic and technical / functional qualities; the elaboration throughout the respective scales - the quality of the presentation, the products and the argument. - the consistency and coherence and development of the students work during his / her process 	
Special Information	<p>The maximum marking period is 10 work days.</p>	
Period of Education	<p>The project starts in week 6 of the first quarter and extends towards the end of the semester. An introduction meeting will take place at the beginning of the semester.</p>	
Leerstoel	<p>Interiors Buildings Cities</p>	
Course evaluation	<p>For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/</p>	

AR2AP012	MSc2 Public Building Design Studio	12
Responsible Instructor	Dr.ir. M.G.H. Schoonderbeek	
Responsible Instructor	Dr.ir. S. Komossa	
Course Coordinator	S. Milani	
Course Coordinator	Ir. A.M.F. van Dam	
Instructor	Ir. F. Geerts	
Instructor	Dr.ir. S. Komossa	
Instructor	Ir. M.J. de Haas	
Instructor	Ir. A.M.F. van Dam	
Instructor	Dr.ir. M.G.H. Schoonderbeek	
Instructor	S. Lee	
Instructor	O.R.G. Rommens	
Instructor	A.S. Alkan	
Instructor	N.E.A.I. Deboutte	
Instructor	N. Marzot	
Instructor	S. Milani	
Contact Hours / Week x/x/x/x	8 hours per week	
Education Period	3	
Start Education	4	
Exam Period	3	
Course Language	none	
Course Contents	English	
Course Contents	<p>A-PB's MSc. 2 studio focuses on the conditions under which architecture operates through the limits of global urbanization and emerging contexts, as well as interdisciplinary processes that blur disciplinary bounds. These conditions allow for elaboration on formal expressions of the architects position in regard to both the disciplinary context and the breach of the disciplinary boundaries themselves.</p>	
Course Contents	<p>Architecture distinguishes itself from mere building: it aspires to accomplish above and beyond meeting necessities and to provide something out of ordinary. We can surmise that architecture stipulates "exceptions" that set itself apart from everyday built environment. Therefore, architecture deals with specificity rather than generality.</p>	
Course Contents	<p>A-PB's MSc. 2 design studio aims to initiate various design agendas from the specificities and/or exceptionalities of a particular material culture of a place arriving at a fully elaborated architectural design. The studios hinge around the specificities through which the students are confronted with singular aspects of different situations. By elaborating on the core issues and eventually defining their own design positions, students are expected to implement their research into design practice within the collective framework.</p>	
Course Contents	<p>The sites and urban conditions that vary each year provide testing ground for diverse scales of inquiry, intervention, analysis and cultural perspective. Architectural means, instruments and techniques provide operative interface but also focus on a set of precisely delineated a priori as compositional constraints. Hence design research is exercised by and within the instruments, techniques and languages of architectural design.</p>	
Course Contents	<p>The cities of the design groups will be announced shortly before the enrollment period starts. Each enrolled student will have an opportunity to choose the group of his/her preference.</p>	
Course Contents	<p>Each city-group requires an excursion abroad. The excursion may cost around 400 or more per person for transport, lodging and other expenses depending on the location.</p>	
Study Goals	<p>Learn to design an architectural object that meets aesthetic as well as technical and functional requirements.</p>	
Study Goals	<p>Understand the relationship between architectural work and its context, as well as the ways to relate architectural experimentation to culturally conducive urban environment.</p>	
Study Goals	<p>Understand the role of architects and architecture in society.</p>	
Study Goals	<p>Develop the ability to clarify a design project to others by means of images, spoken and written words.</p>	
Education Method	<p>Studio: 112 hours</p>	
Education Method	<p>Lectures: 8 hours</p>	
Education Method	<p>Independent study: 216 hours</p>	
Assessment	<p>Studio attendance & participation</p>	
Assessment	<p>Excursion participation</p>	
Assessment	<p>Mid-term (week 4.2) and final (week 4.10) reviews</p>	
Assessment	<p>(Specific weeks & dates of the presentation may be subject to change according to the official academic calendar of the university.)</p>	
Special Information	<p>The studio work may include and be supplemented by charrettes, informal/intermediate reviews, as well as by supplementary lectures and workshops.</p>	
Special Information	<p>Shortly prior to the beginning of the semester, each student will have an opportunity to choose and sign up for one of the city-groups. The student must select and express the first, second and third preferences. When the preferences are missing, the student will be randomly assigned to a city-group.</p>	
Special Information	<p>After the city-studio selection process, each student will also be given an opportunity to switch places 1:1, if necessary and at the discretion of the studio instructors.</p>	
Special Information	<p>During the first half of the semester, until the midterm review, the students will work in groups.</p>	
Special Information	<p>The maximum marking period is 10 work days.</p>	
Special Information	<p>For more information, contact: pb-edu-bk@tudelft.nl</p>	

Period of Education	Semester
----------------------------	----------

AR2AT020	Agential Materialism Architecture Theory Design Studio	12
Responsible Instructor	Dr.ir. H. Sohn	
Course Coordinator	Dr.ir. H. Sohn	
Instructor	Dr.ir. A. Radman	
Instructor	Dr.ir. H. Sohn	
Instructor	Dr.ir. S. Kousoulas	
Instructor	Dr. A. Altes Arlandis	
Contact Hours / Week x/x/x/x	8 hours per week	
Education Period	4	
Start Education	4	
Exam Period	none	
Course Language	English	
Required for	This course is an elective choice for the required MSc2 studio credits.	
Expected prior knowledge	Students with interest and motivation in theoretical and conceptual aspects of architecture design are encouraged to join this studio.	
Course Contents	<p>The Architecture Theory Studio Agential Materialism is a design studio with a strong theory component that engages architecture as a material-discursive practice, in which the conceptual and the non-conceptual (theory & design) are regarded as fully agential and relational: they happen and emerge in the same space-time-matter continuum. In our studio we will investigate conceptual terms such as matter, objects, things, bodies, as well as the notions of process, change, emergence and agency, among many others, as a means to investigate their application and potential for architecture design. Our studio explores the power of concepts as methods for practice, and experiments with the affective capacities of matter as fundamental in the genesis of form.</p> <p>The thematic and design assignments of our studio vary, but always depart from actions rather than programmatic or functional prerequisites, foregrounding the potentials of architectural, material and spatial agencies involved in the design process.</p> <p>This studio is highly experimental and hands-on in regards to the material aspects of theory as practice. It welcomes students who are inclined to explore unfamiliar (yet exciting) themes, raise interesting questions and problems, and experiment with ideas and matter to make their design practice and skills more meaningful.</p>	
Study Goals	<p>After completion of this design studio the participants will:</p> <ul style="list-style-type: none"> have a solid base of knowledge on recent literature in the humanities and the social sciences and their relation to architecture practice and theorization have acquired solid knowledge-base to discern theoretical, analytical and synthetic methodologies and their application in the design process. have developed a deeper understanding of the relationships, potentials and interactions of different agents involved in any design process. have developed experimental and innovative design skills through conceptual, abstract and theoretical thinking. have experimented with different media and tools as aids for the communication of architectural proposals and ideas. have acquired research skills, and will be able to apply these in reflections and theoretical argumentation of their design projects. will have acquired understanding of the societal, cultural, technological and ethical dimensions of a design process that includes human and non-human actors alike. 	
Education Method	<ul style="list-style-type: none"> monthly lectures and weekly theory seminars discussion on related themes weekly design studio reviews presentations (interval & final) with visiting critics 	
Course Relations	<p>This course is compatible with the Architecture Theory Thesis course (AR2AT030). We encourage students to follow both courses in the same semester.</p> <p>Students wishing to participate in both courses are advised to register in the enrolment period for the Spring semester.</p>	
Literature and Study Materials	<p>Study material, reading lists and other relevant course-related literature will be made available to the students prior to the first meeting.</p>	
Prerequisites	<p>Students wishing to participate in this course are strongly recommended to have completed the necessary credits for MSc1.</p>	
Assessment	<ul style="list-style-type: none"> methodology development architectural design proposal theoretical reflection 	
Special Information	<p>This course is highly compatible with the Architecture Theory Thesis (AR2AT030). Students wishing to follow this studio are advised to enrol in both courses. Please note that the courses have different education periods (Q1/3 & Q4 respectively)! For questions please contact our student assistants or the academic coordinator at AT-MSc-BK@tudelft.nl</p>	
Elective	Yes	
Tags	<ul style="list-style-type: none"> Abstract Adventurous Design Group work Intensive Process Research Methods 	
Period of Education	This studio is offered only in Q4 (Spring term) of each academic year.	
Leerstoel	Architecture Theory Chair	
Maximum aantal deelnemers	20 students	

AR2CP010	MSc2 Complex Projects Design and Research Studio	12
Responsible Instructor	Prof.ir. C.H.C.F. Kaan	
Course Coordinator	M. Triggianese	
Contact Hours / Week x/x/x/x	80 hours per Quarter	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	BSc and MSc 1 completed	
Course Contents	<p>AMBITION In Master 2 we focus on Cities. This research and design studio promotes broad speculation, independent thinking, collective work with the aim of positioning architecture into a broader social, cultural, political, and economic context. Through the various themes, students are exposed to the versatile layers of the city, while simultaneously expected to engage their observations with daily studio work. Understanding the hard and soft layers, that actually define the values of a contemporary city, can lead towards ambitions to follow. After forensic analysis of the layers, a new framework will be developed for the project area that will be extracted and developed in detail.</p> <p>EVALUATION Evaluations will be based on the research approach, dedication, commitment, effort and improvement of the team in the investigation of the City (and the project area). Concrete aspects for evaluation are: research work, clarity of the problem statements, originality of the final presentation. Please contact the course coordinator for the specific programme / cities of the semester.</p>	
Study Goals	<p>The student: Has developed the skills in architectural design satisfying both aesthetic and technical/functional requirements. During the trajectory the complexity of the architectural design increases leading to a level fit for architectural practice. During this trajectory, skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology and human sciences. Additionally, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and societies needs, including environmental aspects. During MSc1, 2, 3 & 4 process skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing.</p>	
Education Method	Besides studio program students are expected to fully engage with events and people which the sites have to offer. Workshops, lectures, tours and travels are included in the studio programme.	
Assessment	Midterm presentation including research, argument and concept. Final presentation with posters and research booklet. Additional visualisation tools can be used, such as video, reportage, models.	
Special Information	As part of the Complex Projects objective, the search for definition of city guides the Design and Research studio, 'IN Cities' studio in its most direct way. Please contact the studio coordinator to know this year's case studies.	
Period of Education	Semester	
Leerstoel	Complex Projects, department of Architecture	
Minimum aantal deelnemers	12	
Maximum aantal deelnemers	16	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR2FM010	The Delta Shelter	12
Responsible Instructor	P.A. Koorstra	
Course Coordinator	P.A. Koorstra	
Education Period	3 4	
Start Education	3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	BSc and Master 1	
Course Contents	<p>The assignment is to design a small project in a Delta environment; a dynamic and natural surrounding on the border of water and land.</p> <p>The infinity of the location and the constant changing conditions invite to research the meaning of boundaries and the integration of the landscape in the design. The experience of the specific and poetic qualities of this environment will be one of the explicit themes in this course; the contradiction between the human scale and the unrestricted landscape, the influence of wind and tide, the flora and fauna and the position of human within this often vulnerable ambience.</p> <p>The role, impact and contribution of architecture in such places is part of the research in this assignment. More specific the typology and manifestation of the architecture will be discussed and developed on the basis of the design proposals. The ethics and aesthetics of architecture will be discussed regarding questions as; What are the necessary conditions for architecture to give a satisfying contribution to this environment? Is it inevitable that architecture is a disturbing factor, can it only be of temporary presence, or can architecture contribute to the appreciation and preservation of these kind of environments?</p> <p>The project will be developed by using physical scale models, hand sketches and text during all the phases of the design process; the analysis, design and presentation. The aim of this method is to stimulate the creative process by using the physical model and drawing as a feedback and inspiration tool to develop the concept into a design.</p>	
Study Goals	<p>-The student will gain competence is conducting design research and research-by-design by using physical models and hand drawings as a tool throughout the design process.</p> <p>-The student will gain insight in collaborating and communicating by making active use of various scale models to present the design in all its aspects; the architectural composition, materialisation and integration of construction.</p> <p>-The student will be able to communicate his contemplations and reflect on the role and position of the architect in this assignment.</p>	
Education Method	lectures and design studio format. Weekly assistances in groups as well on individual basis.	
Assessment	<p>Assesment on the basis of process, analysis, documentation and (re)presentation of the end result. A brief reflective statement of max 450 words is part of the assesment.</p> <p>Presentation will contain a variety of physical models, drawings, photographs and text.</p> <p>The products should give a clear insight in spatial design, the construction and the relation and meaning of the design towards its environment.</p> <p>The student has achieved a sufficient result on scale 1 to 10 with 6, has the possibility to take a resit with a mark between 5 and 6 and failed with 4,9 or minor. Resit has to be completed within 2 weeks after completion the studio.</p>	
Special Information	coordinator	
Remarks	A site visits can be part of the studio	
Period of Education	Q3 & Q4, 15 weeks, starting in week 3.6	
Leerstoel	Form & Modelling Studies, Architecture	
Minimum aantal deelnemers	12	
Maximum aantal deelnemers	32	

AR2MET010	Transdisciplinary Encounters	12
Responsible Instructor	Dr.ir. P.J. Teerds	
Responsible Instructor	Dr.ir. K.M. Havik	
Course Coordinator	Dr.ir. P.J. Teerds	
Instructor	Dr.ir. P.J. Teerds	
Contact Hours / Week x/x/x/x	4 hours per week	
Education Period	4	
Start Education	4	
Exam Period	none	
Course Language	English	
Course Contents	<p>The field of architecture holds a broad set of research and design methods, but also has the capacity to productively engage with approaches and perspectives from other fields that deal with the built environment such as literature, arts, cinema, philosophy, psychology, and social sciences. In contemporary architectural practice several architects (Steven Holl, Peter Zumthor, Bernard Tschumi, Rem Koolhaas) have used these productive encounters and exchanges with other fields to reorient architectural analysis and design.</p>	
	<p>The Msc2 studio Transdisciplinary Encounters offers a site of exploration for students interested to pursue the possibilities of the encounter between the architectural practice and other disciplines. These may be artistic disciplines, providing instruments such as literary description, narrative, montage and scenario writing, or disciplines from social sciences, providing fieldwork techniques related to social spatial practices and user behaviour. The studio encourages students to develop experimental methods of analysis and design in order to obtain new design solutions.</p>	
	<p>This studio is dedicated to the exploration of a broader scope upon the built environment by using encounters and exchanges with methods from other disciplines. It focuses on the implementation of investigative and creative methods from these fields, particularly focussing on site research and how such new methods and ways of looking can be implemented within the field of architecture.</p>	
	<p>The studio exercise will depart from specific and extensive fieldwork methods, and aims to carry out a site-specific analysis with experimental techniques. Results from the site analysis will be brought to the field of architecture step by step, in order to lead to architectural or urban strategies of intervention.</p>	
Study Goals	<p>the student:</p> <ul style="list-style-type: none"> -becomes acquainted with approaches from other disciplines such as literary, artistic and cinematographic practices, or social science disciplines -learns to conduct field work on site -learns to use and develop experimental methods of analysis and design -implements investigative and creative methods from these fields to conduct site research and develop urban or architectural strategies for a given site 	
Education Method	<p>Combined seminar and studio; in-situ fieldwork. Through experimental in-situ fieldwork the studio will develop tools in order to understand and address the issue of the public realm of a specific city, area or neighbourhood. To do so, during the studio students will adopt and adapt techniques from different other scientific or artistic fields that adjust the profession of architecture, like social geography, anthropology, sociology, and philosophy or sculpture, literature, and cinema. Through these investigations, detailed quantitative and qualitative mappings can be drawn, based on statistical analyses, socio-historical research and in-depth interviews. Depending on the specific approach of the studio, these techniques can be combined with particular drawing techniques such as the section, the softmap and the collage. The site research will thus result in evocative and speculative drawings, models, texts, and films. In a concise presentation the students are requested to evoke their projects and visions on a larger urban scale, as well as to propose site-specific interventions.</p>	
Assessment	<p>For this elective course, the process and the development of appropriate tools for fieldwork and the students reflection upon these methods and the results of the fieldwork will be assessed through mid-term presentations and a final presentation. Criteria are focussing on the consistency of the project: the relation between methods, research findings and urban or architectural strategy.</p> <p>The students are expected to bring their work together in a collective book, thereby showing the broad perspective of site investigations and developed strategies. For the final presentation, representatives from the given site and disciplinary field will be invited as guest critics.</p>	
Elective	Yes	
Tags	Research Methods	
Period of Education	Quarter	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

MSc1 Design Projects

AR1AD011	Dwelling Design Studio: 'The Netherlands'	12
Responsible Instructor	Ir. P.S. van der Putt	
Course Coordinator	Ir. P.S. van der Putt	
Instructor	Ir. P.A.M. Kuitenbrouwer	
Instructor	Ir. O. Klijn	
Contact Hours / Week x/x/x/x	112 hours per semester	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Course Contents	<p>Students of the Dutch Housing Studio design a residential complex in an urban environment in the Netherlands. The design is accompanied/preceded by research into the design assignment and the specific topics of the studio.</p> <p>Each semester the design assignment may be different from the one before. Oftentimes there are two studio options (however, the chair reserves the right to cancel an option if there is a lack of interest from students).</p> <p>Though topics may vary from one semester to the next, at the core of each studio lies the design of dwellings and of the dwelling environment, complemented by research and literature study. Design work is done individually, while some of the research may be performed in teams.</p> <p>Topics of the Studio may include (but are not limited to) the inclusive city, work-live combinations, projects for specific target groups, and small scale interventions. More specific information about the design assignment of the upcoming semester can be found on the website and at the Master-information meetings that take place twice a year.</p> <p>All MSc 1 Dwelling students will take part in a site excursion as well as a workshop or master class revolving around the theme of the studio. The studio is not available for MSc 2 students. MSc 1 students are required to also enrol in Architectural Studies (AR1AD030) and Architectural Reflections (AR1AD040).</p>	
Study Goals	<p>Upon completion of the course the student is able to</p> <ul style="list-style-type: none"> design a sketch version of an urban plan for a given area in terms of massing, program and zoning. design a complex residential building with additional functions, subscribing to the functional demands of the brief and the spatial, structural, technical and aesthetic requirements of architecture. design several dwellings that suit functional demands of their respective target groups. perform research of precedent projects and to demonstrate their impact on his/her own design. develop and compare design alternatives. critically reflect on the assumptions and starting points of the brief. convey his/her design ideas by way of (oral) presentations. critically reflect on his/her own design process. 	
Education Method	Studio: 70 hours Self-study: 266 hours	
Assessment	<p>Presentations will be held throughout the semester; assessment by way of final presentations at the end of the studio. Exact requirements to be announced at the start of the studio.</p> <p>The final grade (F) for AR1AD011 will be a weighted average of the Architecture grade (A) and the Building Technology grade (BT), such that $0,8 \times A + 0,2 \times BT = F$. Both A and BT will be rounded to half or whole points. The final grade will be rounded to one decimal place.</p>	
Special Information	The maximum marking period is 10 working days.	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1AE010	EXTREME architecture	12
Responsible Instructor	Prof.dr.ing. U. Knaack	
Course Coordinator	Ir. R. Schroën	
Contact Hours / Week x/x/x/x	12 hours per week	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Course Contents	<p>The project is about building in a extreme situation, in respect to climate, location and function. Essence is the interaction between the extreme circumstances, the technical solutions, and the architecture. Extreme circumstances do request technical solutions which will be the starting point for the design development. The designer has to direct the 'engineer questions and answers', towards the articulation of the form which is based on integration of aesthetic and technology.</p>	
	<p>For this project we will be focussing on the Maldives: a group of atolls which is expected to disappear below the rising sea level. How can we use architecture and engineering to preserve this community?</p>	
	<p>"Die Architektur des 21 Jahrhunderts hat ihre Unschuld verloren, Gebaude müssen etwas leisten" Stefan Behnisch.</p>	
	<p>In the end the student is able to understand technical solutions, to reflect on them, to applicate them and to transform them. And the student is able to design a coherent design result.</p>	
Study Goals	<p>Upon completion of the MSc1, 2, 3 & 4 studio trajectory the student: Has developed the skills in architectural design satisfying both aesthetic and technical/functional requirements. During the trajectory the complexity of the architectural design increases leading to a level fit for architectural practise. During this trajectory skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology and human sciences. Additionally, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and societys needs, including environmental aspects. During MSc1, 2, 3 & 4 process skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing. Together with the training with regard to aspects of building technology, during the MSc1, 2, 3 & 4 process skills are acquired to incorporate an understanding of the design process with regard to structural design, materialisation of buildings, comfort and climate control.</p>	
	<p>In the end the student is able to design a healthy coherent building in extreme conditions with a focus on technical solutions: the student is able to apply, reflect and transform principles concerning climate, construction and structure.</p>	
Education Method	Design project	
Assessment	The design result including the aspects structure, climate and envelope.	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1AI010	Interiors Buildings Cities MSc 1 Design Project	12
Responsible Instructor	Prof. D.J. Rosbottom	
Course Coordinator	Ir. S. Pietsch	
Instructor	Ir. M.E. Stuhlmacher	
Instructor	Ir. L.M.M. de Wit	
Instructor	M. Pimlott	
Instructor	D.H.G. Somers	
Instructor	Ir. S. Pietsch	
Instructor	Ir. J.S. Zeinstra	
Instructor	Ir. drs. E.P.N. Schreurs	
Instructor	S.S. Mandias	
Instructor	Prof. D.J. Rosbottom	
Contact Hours / Week	4 hours per week	
x/x/x/x		
Education Period	1	
Start Education	2	
Exam Period	3	
Course Language	English	
Summary	<p>The Chair of Interiors Buildings Cities is concerned with making buildings, in places, for people. It conceives of the city, at each scale, as a work of architecture and, hence, the responsibility of the architect. This developing discussion of the chair is contextualised through an annual theme.</p>	
Course Contents	<p>The MSc1 course, The House in the City, considers detailed material and spatial programmes for proto-typical city buildings with the intention of nurturing architectural sensibilities in students that are attuned to context, users, relations, appearances, spaces and interiors, materiality, and construction.</p>	
Study Goals	<p>MSc 1 is structured as a series of parallel studios, run by a dynamic mix of practitioners and academics and collectively concerned with interpretations of a common theme, the House in the City. Understood ambiguously, as in the German Haus, the concerns of the course are not the representative monuments of culture, nor the private houses of individuals. Instead, projects explore those buildings that stand between, housing our collective urban life and oscillating, in our consciousness, between foreground and background. Carefully wrought, spatially rich, generous and adaptable, such buildings have the capacity to evolve over time and to engage in a territory that might encompass both extended domestic and intimate public life. As discrete elements, subservient to a larger whole, they play small but significant roles in structuring urban fabric and defining urban space, simultaneously taking pleasure in the heterogeneity of the contemporary city and bringing it into order.</p> <p>Through individual projects, each studio addresses how such city houses might be made, experienced and inhabited, in time and space and in response to the particularities of place. Through careful drawing and iterative making, their individual characters emerge in a welcoming interior, through a moment of figuration or in the refinement of a façade.</p> <p>The contents of the individual studios will be published at the beginning of the semester. Students are asked to indicate their preference for one of them. Usually the studios include a 2-3-day excursion to a location relevant to the project. The corresponding information will also be communicated at the start of the semester.</p> <p>The MSc1 Design Project (Ar1Ai010) is conceived in conjunction with the Fundamentals course (AR1Ai040). Students are required to enrol to both courses.</p>	
Education Method	<p>Upon completion of the Master 1, 2, 3 & 4 studio trajectory the student:</p> <ul style="list-style-type: none"> - Has developed the skills in architectural design satisfying both aesthetic and technical / functional requirements. During the trajectory the complexity of the architectural design increases leading to a level fit for architectural practice and a training period for professional accreditation as architect. - During this trajectory skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology and human sciences. - Additionally, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and society's needs, including environmental aspects. - During Master 1, 2, 3 & 4 process skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing. - Together with the training with regard to aspects of building technology, during the Master 1, 2, 3 & 4 process skills are acquired to incorporate an understanding of the design process with regard to structural design, materialisation of buildings and interiors, comfort and climate design. <p>A specific description of the aims of the studios will be published in the Studio Manual, to be distributed at the beginning of the course.</p>	
Literature and Study Materials	<p>The design studio features individual and group tutorials, and study specific to the design project as well as several dedicated thematic exercises, internal lectures and seminars that pertain to and inform the subject.</p> <p>A characteristic working method of the Chair is the building of physical models of varying scales in which ideas about the design project are tested and materialized.</p> <p>To be announced upon beginning of the course</p>	
Assessment	<p>The design studio concerns the development of an architectural project on all scale levels, from its urban setting to its materiality and elaboration of its details. The project will be assessed during an intermediate, pre-final and final presentation on its:</p> <ul style="list-style-type: none"> - the position that is formulated with regard to the brief and its context - the appropriateness of the intervention with respect to the assignment - aesthetic and technical / functional qualities - the elaboration throughout the respective scales - the integration of the disciplines included - the quality of the presentation, the products and the argument. - the consistency and coherence and development of the students work during his / her process <p>The products to be assessed include the design proposal represented through drawings, models and text; the project journal and</p>	

	the portfolio.
	The final grade consists of partial grade of 80% for Architecture and 20% for Building Technology. Both grades need to be sufficient for the student to pass.
Special Information	The maximum marking period is 10 work days.
Period of Education	Semester
Leerstoel	Interiors Buildings Cities
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/

AR1AR011	Heritage and Architecture Design Studio: Architectonic Design	12
Responsible Instructor	Ir. W. Willers	
Course Coordinator	Ir. W. Willers	
Instructor	Ir. A.W. Hermkens	
Instructor	Ir. W. Willers	
Contact Hours / Week x/x/x/x	8 hours per week	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Summary	The design assignment focuses on the intervention at existing buildings or ensembles to meet requirements of contemporary and future use. The design process will be guided by exploring design possibilities and architectural consequences of the design.	
Course Contents	<p>The object of this Heritage & Architecture studio is the architectural design for the re-use of a building or building-ensemble to meet requirements of contemporary and future use.</p> <p>A transformation framework will be made by the interpretation of the analysis of the urban context, the building and the program requirements. Various aspects of designing in existing built structures are investigated by studying reference projects and literature.</p> <p>By working on different scale-levels a coherent design will be made. At atelier meetings different aspects like relation existing new, urban context, functionality, spatial quality, technical aspects, material aspects will be discussed.</p> <p>Different presentations will help students to develop their presentation skills.</p> <p>The current debate of transformation and intervention with topics like authenticity, sustainability, layers of history, and so on is very present during this course on every single scale.</p>	
Study Goals	<p>Upon completion of the Master 1 design project the student is able to:</p> <ul style="list-style-type: none"> - interpret cultural values on urban, architectural and technical scale and create a transformation framework, - translate a transformation framework to a design strategy, and a design strategy to an elaborated design, - incorporate aspects in the field of architectural history and architectural theory, art, society's needs, human sciences and environmental aspects. - make a design satisfying functional, aesthetic and technical requirements, - position the project in the discourse, - explain the architectural design during a presentation by combining oral, written and graphic media (e.g., drawings, models) 	
Education Method	Design coaching, 4-8 hours counseling per studio during educational weeks, total 112 hours. Self study: total 224 hours.	
Literature and Study Materials	Will be delivered by the tutor and/or coordinator, or via Brightspace	
Assessment	Research booklet Presentation at the end of the semester	
Special Information	Presence at the first meeting is mandatory. For the assessment the presence during the course and the overall design process will be taken in consideration.	
Period of Education	Semester	
Leerstoel	Heritage & Design	
Minimum aantal deelnemers	12, minimum group 8 students	
Maximum aantal deelnemers	48	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1CP010	Complex Projects Design Studio	12
Responsible Instructor	Prof.ir. C.H.C.F. Kaan	
Course Coordinator	M. Triggianese	
Instructor	Ir. A.T. Richters	
Instructor	S. Filippas	
Contact Hours / Week x/x/x/x	80 hours per semester	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	BSc degree Architecture	
Course Contents	<p>As introduction to Complex Projects, this design studio, 'Landmark', has the ambition to make students familiar with the multiple aspects that define a building. Landmark assignment aims for developing skills in the scientific method of analysis and synthesis. Via anatomical dissection, students learn to identify soft and hard aspects of a building while placing them in the bigger frame of the total composition of the building and its context.</p> <p>The studio promotes broad speculation, independent thinking, collective work with the aim of positioning architecture into a broader social, cultural, political, and economic context. Students will perform a thorough urban research in order to understand the areas history and context, and to identify the Landmarks that could become catalyst for intervention. The research zooms in from the large scale of the city itself, to the medium scale the site, to the small scale of the building. The resulting data has to be organized into a comprehensive research book. This serves as basis for forming a narrative which is leading for the individual redesigns of the Landmark.</p> <p>The seminar AR1CP040 (Anatomy) is fully integrated with the studio. An educational trip / excursion with on-site workshops is part of the studio program. Please contact the studio coordinator to know this year's case studies.</p>	
Study Goals	<p>Upon completion of the MSc1, 2, 3 & 4 studio trajectory the student:</p> <ul style="list-style-type: none"> Has developed the skills in architectural design satisfying both aesthetic and technical/functional requirements. During the trajectory the complexity of the architectural design increases leading to a level fit for architectural practice. During this trajectory, skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology and human sciences. Additionally, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and society's needs, including environmental aspects. During MSc1, 2, 3 & 4 process skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing. Together with the training with regard to aspects of building technology, during the MSc1, 2, 3 & 4 process skills are acquired to incorporate an understanding of the design process with regard to structural design, materialization of buildings, comfort and climate control. 	
Education Method	Tutorials in studio. Research will be done in thematic groups, design is either individual or in groups of max 2 students.	
Reader	Reader (syllabus) with the studio programme, the basic literature and the weekly schedule will be provided prior to start studio	
Assessment	<p>Monthly pin ups showing research, argument and concept.</p> <p>Trial presentation two weeks prior to the final presentation. The overall work has to be finished by then. Final presentation composed of research books (with critical investigations and site-analysis) and design studio book (with design projects) and digital presentation.</p>	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Semester	
Leerstoel	Complex Projects, department of Architecture	
Minimum aantal deelnemers	16	
Maximum aantal deelnemers	32	
Course evaluation	<p>Evaluations will be based on the overall performance within the studio. The students performance will be determined by the quality of his/her work, commitment, teamwork, effort and improvement over the entire course of the semester. Concrete aspects for evaluation are; research work, argument formulation, translation argument into concept, urban plan, architectural design, presentation.</p> <p>For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/</p>	

AR1MET010	Ways of Doing	12
Responsible Instructor	Dr.ir. K.M. Havik	
Course Coordinator	Dr.ir. P.J. Teerds	
Instructor	Dr.ir. P.J. Teerds	
Instructor	Dr.ir. W.W.L.M. Wilms Floet	
Contact Hours / Week x/x/x/x	8 hours per week	
Education Period	1 2	
Start Education	1	
Exam Period	none	
Course Language	English	
Summary	<p>The studio Ways of Doing aims to develop and assess distinct methods that allow for innovative way of analysis, architectural design, and spatial intervention in challenging (post-)industrial regions in the Low Countries. Every semester a different site to work on is chosen. These (post-)industrial areas often are dominated by characteristic constructions and buildings: huge installations, factories, warehouses and offices, some still in use, others empty. Particularly in the post-industrial sites, often social questions and signs of foreclosure dominate both the political and the physical landscape. Cities make redevelopment plans, although often it is quite difficult to find the right program and approach in order to revitalise such areas as the local economy.</p> <p>The aim of education in the Methods & Analysis MSc1 studio is to merge analysis and design extensively, in order to face difficult architectural, spatial, technological, social and political questions that dominate these (post-)industrial landscapes.</p>	
Course Contents	<p>From Otto Wagner to Aldo Rossi and Robert Venturi, architects have always developed new approaches and tools to react to changing urban conditions. The studio Ways of Doing wants to position itself within this architectural tradition and asks: Which toolbox can we cultivate to confront new urban ecologies like (post-)industrial landscapes? Through particular assignments, it aims to develop and assess distinct methods that allow for innovative way of analysis, architectural design, and spatial intervention in the challenging reality of (post-)industrial landscapes in various cities in The Netherlands and Belgium. Each semester another site is chosen to be investigated. These (post-)industrial areas often are dominated by characteristic constructions and buildings: huge installations, factories, warehouses and offices, some still in use, others empty. Particularly in the post-industrial sites, often social questions and signs of foreclosure dominate both the political and the physical landscape. Cities make redevelopment plans, although often it is quite difficult to find the right program and approach in order to revitalise such areas as the local economy. Students investigate the spatial, social and political situation by studying particular themes, like the atmosphere, the infrastructure, public space, as well as by using specific methods of analysis and design, like soft-mapping and drawing sections, or developing narratives or spatial poems. Analysis, in this particular perspective, is extensively part of the design-approach that the student will develop during the studio. Part of this approach also is the choice of location, program and aim of a spatial intervention in the area of study.</p>	
Study Goals	<p>Upon completion of the Master 1, 2, 3 & 4 studio trajectory the student:</p> <ul style="list-style-type: none"> - Has developed the skills in architectural design satisfying both aesthetic and technical / functional requirements. During the trajectory the complexity of the architectural design increases leading to a level fit for architectural practise. - During this trajectory skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology and human sciences. - Additionally, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and societies needs, including environmental aspects. This includes moral decision and argumentation skills regarding architectural ethics, especially when addressing social, political, environmental and technological issues. - During Master 1, 2, 3 & 4 process skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing. - Together with the training with regard to aspects of building technology, during the Master 1, 2, 3 & 4 process skills are acquired to incorporate an understanding of the design process with regard to structural design, materialisation of buildings, comfort and climate control. 	
Education Method	<p>The msc1 studio Ways of Doing takes up the task to investigate new tools and methods to address the challenging paradox of historical presence on the one hand, and large new developments on the other. The studio does so by constantly shifting to different methods, in order to look at the site and the research question from various perspectives, which can vary from strict architectural towards technological, and from spatial to political perspectives.</p> <p>During the course, different methods will be applied: from fieldwork to investigations by means of narrative or sections; from material explorations to the development of sequences of use; by focussing on building-technological aspects or on atmospheric aspects of spaces; from focusing on basic architectural elements such as floor, wall and roof, to articulating structural aspects like repetition and hierarchy.</p> <p>Students will start to work in small groups on distinct research themes the result of these investigation is understood as the share knowledge base that is developed in the studio. Based on these insights, the students either continue to work in groups or work individually on the proposal of a spatial intervention in a location of choice.</p>	
Course Relations	<p>This design studio is accompanied by two theoretical seminars, Architectural Tools (AR1MET030) and The Roles of the Architect (AR1MET040) that respectively investigate the instruments used by architects to develop their plans and ideas, and how these affect the very outcome of the design-process, and explore the various roles architects can take within contemporary practices and society.</p>	
Assessment	<p>The course is assessed through a mid-term review and a final presentation of the project. However, as for this course the process is as important as the final design, the students need to present not only the project, but also substantial intermediate findings. The tutors will assess, during the mid-term review and the final presentation the way students understand and apply different methods offered. Particular attention will be given to the question how the student succeeds in using methods as offered in the studio, and how the student is able to formulate particular design hypothesis based on these exercises. The consistency of the project on a methodological, architectural and technical level is crucial for the final assessment. For the mid-term review as well as for the final presentation, external critics will be invited.</p>	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1TWF010	The Why Factory Design Studio: Design lab I	12
Responsible Instructor	Prof.ir. W.G.M. Maas	
Responsible Instructor	F.M. Madrazo Salazar	
Course Coordinator	J. Arpa Fernandez	
Instructor	F.M. Madrazo Salazar	
Instructor	Prof.ir. W.G.M. Maas	
Co-responsible for assignments	S. Gargaretas	
Contact Hours / Week x/x/x/x	6 hours per week	
Education Period	1 2	
Start Education	1	
Exam Period	none	
Course Language	English	
Course Contents	<p>This course is a MSc1 studio, and is organized as a think tank. Studios at The Why Factory are content-driven design and research studios with a practical and theoretical scope. MSc1 studios are research labs and platforms that aim to analyse, theorize and construct future cities. They conduct a variety of investigations within the given world, and produce future scenarios beyond it: from universal to specific and global to local.</p> <p>MSc1 studios start with a specific brief and a statement on the future of urban life. Based on the brief, future scenarios will be developed leading to visionary, city-related designs.</p> <p>Students develop their specific approach to the brief and define the necessary scientific research. Calculations, simulations or modelling to support the studio work are elaborated in a parallel seminar: the Future Models seminar.</p> <p>The results of the research lead to a design project with consequent logic, convincing argumentation and illustrative and fantastic visuals.</p>	
Study Goals	<p>Upon completion of the Master 1, 2, 3 & 4 studio trajectory, the student:</p> <ul style="list-style-type: none"> - Has developed the necessary skills in architectural design that satisfy programmatic, aesthetic and technical requirements. <p>During the Masters trajectory, the complexity of the architectural design increases, leading to the level required for professional practice.</p> <ul style="list-style-type: none"> - During this period, skills are acquired to increasingly incorporate an understanding of design processes, architectural history and theory, art, technology and human sciences. - Additionally, skills are acquired to incorporate into design an understanding of the relation between buildings, spaces and society's needs, including environmental aspects. - During Master 1, 2, 3 & 4, skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing. - Together with the building technology training, during Master 1, 2, 3 & 4 skills are acquired to incorporate an understanding of the design process with regard to structural design, materialisation of buildings, comfort and climate control. 	
Education Method	Atelier: 150 hours	
Education Method	Self study: 270 hours	
Course Relations	MSc1 studios are linked to two other courses of The Why Factory: the Actualities Workshop (AR1TWF020) and the Future Models seminar (AR1TWF030).	
Course Relations	Students who join the MSc1 design studio AR1TWF010 as core course must join AR1TWF020 and AR1TWF030 as well.	
Course Relations	Students who join the design studio AR1TWF010 as an optional MSc2 studio are not obliged to join AR1TWF020 and AR1TWF030. However, we advise students to join the Future Models seminar AR1TWF030, as it may be helpful for the content of the design studio.	
Assessment	Presentation	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

MSc 3 Architecture and Dwelling

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

Compulsory Choice MSc 3

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

Dutch Housing

AR3A160	Lecture Series Research Methods	6
Responsible Instructor	Dr.ir. P.J. Teerds	
Responsible Instructor	Dr.ir. K.M. Havik	
Course Coordinator	Dr.ir. P.J. Teerds	
Instructor	Dipl.ing. R.A. Gorny	
Instructor	M.F. Berkers	
Contact Hours / Week	28 hours per quarter	
x/x/x/x		
Education Period	1 3	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	General Master 2 level of knowledge.	
Course Contents	The lecture series will allow MSc 3 students from all the departments and chairs of our Faculty to reflect on and explore a series of methodological approaches, which should strengthen their architectural positions in the graduation studio, towards the conclusion of their formative process and the consequent obtainment of the corresponding degree.	
	Students involved in this course are expected to operate at a final year Masters level, meaning they are responsible for performing critically within the series of concepts presented in the course; as well as individually fulfilling course requirements such as being acknowledged with the basics of scientific writing, formulating hypotheses and investigating at a level equivalent to their standing within the curricular track.	
	This lecture series will address scientific integrity to make sure that architecture students develop the necessary skills for integer research approaches while being aware of the societal, political, physical and environmental impacts their research and design work has.	
Study Goals	The lecture series aims to:	
	- Take advantage of the magnitude and diversity of the series. The line-up of lecturers, paired to the differences among the academic tracks followed by students from several chairs and departments, should substantially enhance each discussion, and promote creative approaches to each of the topics discussed.	
	- Endow the students with clear knowledge of the heuristic nature of their work. The central thesis of the course is that all architectural activity is an exploration within identifiable disciplinary fields of experimentation, based on equally identifiable epistememes. Awareness of that explorative/cognitive capacity of architecture we sustain is a crucial element in the formation of an architect.	
	- Present the students with a selection of relevant and progressive architectural methodologies and analytical strategies that are currently being used and discussed within the A+BE academic community and in other outstanding educational institutions.	
	- Invite students to become engaged in these discussions actively, in order for their graduation processes to constitute real contributions to the professional debate that feeds our Faculty. It is expected that, with the information provided in this course, each graduation process aims to produce additional architectural knowledge in the face of established and ongoing research programs.	
	- Focus on moral sensibility, analysis, creativity, judgment, and skills regarding architectural ethics when developing specific expertise.	
Education Method	The course comprises two, parallel activities: A series of lectures and the preparation of a position paper.	
	The lecture series is made up of seven sessions. Six have defined topics, the first is introductory.	
	Each lecture session includes a 30+ min. presentation by a lecturer, a 30+ min presentation by a group of students, and a 30+ minute series of Q&A, presented to both lecturer and students.	
	Each guest lecturer is responsible for submitting on the fore a reference text for students to prepare the session, and a paper of her authorship that exposes, summarizes or complements her presentation. Both documents will be made available to the whole group of students with sufficient anticipation.	
	A group of students will be responsible for preparing each lecture. These groups will be formed during the course intro, and will divide themselves into a subgroup in charge of presenting the topic, and other subgroups in charge of preparing a series of debate topics and questions, for the closing discussion.	
	The whole group of students in charge of preparing each session will participate in a workshop, in which they will be guided in the development of their presentation and the construction of different positions within the chosen topic, looking forward to the debate. These workshops will take place on Monday mornings, and will be tutored by the coordinators of the lecture series and/or staff from the chair of Methods and Analysis.	
	Before entering each lecture session, the group of presenting/debating students will hand in a paper of their authorship (2000 words, aprox.) that exposes, summarizes or complements their presentation, the images that accompany their talk, the questions and debate topics developed to feed the debate, and any other addenda they consider necessary to support their understanding of the topic.	
Literature and Study Materials	A reader will be distributed via Blackboard/Brightspace	
Assessment	Each student is responsible to elaborate on her own reflections regarding the course, the debates, the literature that will be provided and suggested, and her own graduation process, by producing an individual position paper (aprox. 2000 2500 words), following scientific standards of writing and structuring her topics (acknowledging a state of the art for a particular discussion, for example) towards the construction of a methodological apparatus in affinity with her own intentions and inclinations.	
	Upon request, specific tutoring/workshops for this second component are available, in the same group format utilized for the preparation of the sessions.	
	In order to attend one of these tutorials, interested students must submit a full draft of their essay, including their name, student number and current chair/graduation studio. The submission deadline for this draft will be specified at the beginning of the period.	
	The course coordination will group the drafts and submit them to available tutors, by topic affinity. These tutors will read the drafts and subsequently organize a workshop with small groups of students. The aim of these workshops are to clarify doubts, elaborate on formal and stylistic concepts, and contribute thematically to the development of the final versions of the papers.	
	The fact that extra tutoring is available does not mean that the students are not encouraged to also seek additional support from their teachers in the other courses that constitute the graduation track.	
	Position papers are expected to be approximately 2000 2500 words in length, and should comply with academic and scientific standards in terms of form and style.	
	The fundamental aim of this assignment is to enable students to formulate a sound and consistent architectural position, in the	

face of the broader discussions presented as a partial state of the art of professional discussion, both within our Faculty and in contemporary architecture culture.

Articulating a position requires knowledge and understanding of a diverse array of postures, which are carefully considered in response to the problems of our time. Getting acquainted with diverse sources, authors and architectural examples; articulating the information contained in these sources; abstracting and operating with the useful and/or relevant ideas they represent; and (hopefully) further elaborating them into progressive architectural models; are all goals of this exercise.

It is assumed that the reflections generated during the course, and the resulting position paper, are active components of the broader exploration that is the graduation project. Research, reflection, discursive elaboration and historical contextualization are fundamental parts of a complete architectural intervention, meant to perform in site- and cultural-specific conditions, but also in the broader intellectual framework that is the architecture of our time.

In this sense, reflections should elaborate on the central concepts, methods and tools employed in the development of the architectural explorations leading to the Masters degree, at a level that transcends the simple description of steps taken in the elaboration of a project.

Cases of plagiarism will be dealt with according to standard procedures established by the corresponding authorities within the University.

Special Information

Each period will include a normal deadline for the presentation of the final position papers. Papers handed in within this deadline will be graded normally.

An extra hand-in moment will be offered for late papers, around the middle of the following academic period. Papers presented for this extra hand-in moment will only be evaluated in terms of pass (6,0/10,0) and fail (5,0/10,0 and under).

Remarks

Position papers will be evaluated on the following items:

- Has a question been clearly defined?
- Has the question been developed beyond its initial formulation?
- Does the paper acknowledge a state of the art, regarding this question?
- Has a position been taken, in relation to this state of the art?
- Is the paper coherent/concise?
- Does the paper follow a clear methodology?
- Are the sources pertinent, and well used?
- Is the language adequate?

Period of Education

Lectures take place during the first quarter of the period.

The second quarter of the period is used for the production of final position papers.

Individualized tutoring is offered upon request, to students who require extra help in the process of writing their papers, during this second quarter.

Course evaluation

The course will be graded on the basis of a final, position paper, worth 100% of the grade assignable to the Lecture Series. This position paper is expected to range between 2000-2500 words, and must be submitted before a specified deadline.

Only papers accepted and graded with a mark above 5,0/10,0 will be eligible for re-takes or further corrections.

Close attention must be paid to the fact that a passing grade in this course is necessary to apply for a Studio P4 presentation. Please note that the deadline for the presentation of these papers is indicated since the very beginning of the semester. This should allow you to plan the development of your essay without interfering with other deadlines. Conflicts with other courses should be negotiated with the Board of Examiners.

AR3AD011	Dutch Housing Research Seminar	6
Responsible Instructor	Ir. P.S. van der Putt	
Course Coordinator	Ir. P.S. van der Putt	
Education Period	1 3	
Start Education	1 3	
Exam Period	Different, to be announced	
Course Language	English	
Course Contents	Students of the Dutch Housing Research Seminar study the typological features of several experimental and/or visionary housing schemes around the world. They will then engage in a design exercise in which the typological DNA of two, three, or four of these projects will be combined into a new scheme. The seminar stimulates the participants to relate research with design and analysis with project.	
Study Goals	By the end of this course, students will be able to:	
Education Method	<p>1. Recognize housing typologies and morphological patterns; 2. Analyse and describe the main generative components of a housing project; 3. Synthesize the main typological and compositional aspects of a housing project using adequate written and visual media; 4. Compose and present a research report using standard academic protocols; 5. Apply the results of an analytical study to a new situation; 6. Design a project for a housing settlement using adequate written, graphic and physical research tools;</p> <p>The course Dutch Housing Research Seminar is divided in two instructional units. The first one comprises an individual assignment and the second unit involves group work. The outcome of the first part of the seminar, a critical case study analysis, will be presented in two complementary ways: an analytical report and an oral presentation. The outcome of the second part will be a group reflection on case studies related with the theme of the Seminar.</p> <p>Each regular session of the course is divided in two parts. In the first part of the session, a specific theme or case study will be discussed. In the second part, the instructors will meet with the students individually or in small groups to give feedback on the progress of the assignments.</p> <p>Quizzes / Flipped Classroom The concept of flipped classroom will be adopted regularly, making available in beforehand a great deal of the information online on Brightspace. This information should be analysed during the self-study hours and then critically reviewed in the classroom. In total, there will be three quizzes and group discussions related with the theme of the session.</p>	
Course Relations	The Dutch Housing Research Seminar is strongly related with the theme and contents developed in the MSc 3 Dwelling Dutch Housing Graduation Studio (AR3AD131).	
Books	The course will use the following publications as main textbook references:	
Assessment	The evaluation method in the course Dutch Housing Research Seminar comprises a combination of summative and formative assessments.	
Period of Education	The individual assignment and the group work will be the object for the summative assessments. The quizzes and the in-class peer-to-peer learning activities are the main formal methods of formative assessment.	
	First and second semester (week 1.4 - week 2.4 / week 3.4 week 4.4)	

AR3AD021	Dutch Housing Tutorial	3
Responsible Instructor	Ir. P.S. van der Putt	
Course Coordinator	Ir. P.S. van der Putt	
Education Period	1 3	
Start Education	1 3	
Exam Period	Different, to be announced	
Course Language	English	
Course Contents	<p>This course helps the Dutch Housing Graduation students with the research report that is part of their studio work. It guides the development of their ideas and the making of their research report.</p> <p>As part of the studio assignment, the students produce a research report. Some items of this report fall under the Research Tutorial course and will be assessed as such.</p> <p>The students will participate in tutorial sessions all through the semester. During this time they will work on, present and receive feedback on three deliverables (which will be integrated in the design studios research report):</p> <ol style="list-style-type: none"> 1. A manifesto about the city of tomorrow; 2. A plan analysis into a topic-related issue; 3. A summary of the design studios research report. 	
Study Goals	<p>By the end of this course students are able to:</p> <ol style="list-style-type: none"> 1. Formulate a vision on the city of tomorrow (a manifesto); 2. Perform topical and to-the-point plan analysis; 3. Summarize their research reports 	
Education Method	Seminars and peer-reviewed tutorial sessions.	
Course Relations	<p>The Dutch Housing Research Tutorial is strongly related with the theme and contents developed in the MSc 3 Dutch Housing Graduation Studio (AR3AD131).</p> <p>The Dutch Housing Research Tutorial is strongly related with the theme and contents developed in the MSc 3 Dutch Housing Graduation Studio (AR3AD131).</p>	
Assessment	<p>The deliverables will be assessed as follows:</p> <p>Manifesto: relevance op topic, deployed writing skills, conciseness;</p> <p>Plan analysis: strength of research question, proposed method, results, conclusions, discussion;</p> <p>Summary: Conciseness, accuracy.</p>	
Period of Education	Autumn and Spring Semester (week 1.1 - week 2.6)	

AR3AD131	Dwelling Graduation Studio: Dutch Housing	15
Responsible Instructor	Ir. P.S. van der Putt	
Course Coordinator	Ir. P.S. van der Putt	
Instructor	T.W. Kupers	
Contact Hours / Week x/x/x/x	X/X/X/X	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Course Contents	Students will design a residential complex that is part of a densification scheme for a major Dutch city. Research is an important element of the course.	
Study Goals	<p>Upon completion of the course the student should be able to:</p> <ol style="list-style-type: none"> 1. Evaluate the results of an analytical study to formulate a critical reflection on the design assignment; 2. Formulate a vision on the city of the future (manifesto); 3. Compose and present a problem statement; 4. Formulate a design hypothesis; 5. Make a conceptual design for a housing project; 6. Produce meaningful visual and physical outputs to communicate the project to an audience of experts; 	
Education Method	<p>The research report furthermore demonstrates the students ability to employ moral sensibility, analysis, creativity, judgment, decision and argumentation skills regarding Architectural ethics and his/her future role as architect. The individual research report should not only contain an elaboration regarding the Graduation Projects societal and disciplinary relevance, but has to also address design ethics and the way in which intercultural issues were addressed in the graduation project.</p> <p>Phase 1 (until P1): Getting acquainted with the method of the studio; first research into the assignment and the design site -> topic selection; in-depth research of topic through investigation of past idealistic/utopian architectural visions around the same topic; site analysis (morphology, history, character, function, et cetera); writing your manifesto; site selection within larger design site.</p> <p>P1: You know your topic and you have studied precedent projects centred around the same topic. Youve formulated a manifesto (up to 3 students may share one manifesto). You have chosen a specific site and can formulate a proposal for the design assignment.</p> <p>Phase 2 (between P1 and P2): Specific research into your topic (case studies, typology, theory, et cetera); mass studies and typological experiments of your building on its site.</p> <p>P2 (GO - NO GO): Research report (including manifesto, case study analysis, conclusions so far, summary, et cetera). You know what is your assignment (design brief, urban performance) and have an urban design (1:1000; building mass and open space) AND typological design (building type at 1:500 and dwelling type(s) at 1:200).</p>	
Assessment	<p>The assessment of the work developed by the students is determined according to the following criteria:</p> <ol style="list-style-type: none"> 1. Ability to identify a relevant topic vis-à-vis the design assignment; 2. Ability to research the topic both from a present-day point of view as from a historical perspective; 3. Ability to identify and interpret relevant information or source material and use it to support the development of the design assignment; 4. Ability to experiment, test and project concepts, processes, forms and materials demonstrating technical competence; 5. Ability to self-reflect on the personal motivations to work on the assignment, capacity to elaborate a realistic planning, and demonstration of the awareness to evaluate his/her own strengths and weaknesses; 6. Ability to create meaningful oral, written and visual communication, prepared using appropriate conventions and media; 7. Demonstration of a critical attitude to the design assignment and ability to work collaboratively and independently within the main standards of the architecture profession. <p>Results:</p> <ol style="list-style-type: none"> 1. Research report (containing (historical) research, plan analysis, a manifesto, a summary); 2. Conceptual design. 	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

Global Housing

AR3A160	Lecture Series Research Methods	6
Responsible Instructor	Dr.ir. P.J. Teerds	
Responsible Instructor	Dr.ir. K.M. Havik	
Course Coordinator	Dr.ir. P.J. Teerds	
Instructor	Dipl.ing. R.A. Gorny	
Instructor	M.F. Berkers	
Contact Hours / Week x/x/x/x	28 hours per quarter	
Education Period	1 3	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	General Master 2 level of knowledge.	
Course Contents	<p>The lecture series will allow MSc 3 students from all the departments and chairs of our Faculty to reflect on and explore a series of methodological approaches, which should strengthen their architectural positions in the graduation studio, towards the conclusion of their formative process and the consequent obtainment of the corresponding degree.</p>	
Study Goals	<p>Students involved in this course are expected to operate at a final year Masters level, meaning they are responsible for performing critically within the series of concepts presented in the course; as well as individually fulfilling course requirements such as being acknowledged with the basics of scientific writing, formulating hypotheses and investigating at a level equivalent to their standing within the curricular track.</p> <p>This lecture series will address scientific integrity to make sure that architecture students develop the necessary skills for integer research approaches while being aware of the societal, political, physical and environmental impacts their research and design work has.</p> <p>The lecture series aims to:</p> <ul style="list-style-type: none"> - Take advantage of the magnitude and diversity of the series. The line-up of lecturers, paired to the differences among the academic tracks followed by students from several chairs and departments, should substantially enhance each discussion, and promote creative approaches to each of the topics discussed. - Endow the students with clear knowledge of the heuristic nature of their work. The central thesis of the course is that all architectural activity is an exploration within identifiable disciplinary fields of experimentation, based on equally identifiable epistememes. Awareness of that explorative/cognitive capacity of architecture we sustain is a crucial element in the formation of an architect. - Present the students with a selection of relevant and progressive architectural methodologies and analytical strategies that are currently being used and discussed within the A+BE academic community and in other outstanding educational institutions. - Invite students to become engaged in these discussions actively, in order for their graduation processes to constitute real contributions to the professional debate that feeds our Faculty. It is expected that, with the information provided in this course, each graduation process aims to produce additional architectural knowledge in the face of established and ongoing research programs. - Focus on moral sensibility, analysis, creativity, judgment, and skills regarding architectural ethics when developing specific expertise. 	
Education Method	<p>The course comprises two, parallel activities: A series of lectures and the preparation of a position paper. The lecture series is made up of seven sessions. Six have defined topics, the first is introductory. Each lecture session includes a 30+ min. presentation by a lecturer, a 30+ min presentation by a group of students, and a 30+ minute series of Q&A, presented to both lecturer and students. Each guest lecturer is responsible for submitting on the fore a reference text for students to prepare the session, and a paper of her authorship that exposes, summarizes or complements her presentation. Both documents will be made available to the whole group of students with sufficient anticipation.</p> <p>A group of students will be responsible for preparing each lecture. These groups will be formed during the course intro, and will divide themselves into a subgroup in charge of presenting the topic, and other subgroups in charge of preparing a series of debate topics and questions, for the closing discussion.</p> <p>The whole group of students in charge of preparing each session will participate in a workshop, in which they will be guided in the development of their presentation and the construction of different positions within the chosen topic, looking forward to the debate. These workshops will take place on Monday mornings, and will be tutored by the coordinators of the lecture series and/or staff from the chair of Methods and Analysis.</p> <p>Before entering each lecture session, the group of presenting/debating students will hand in a paper of their authorship (2000 words, aprox.) that exposes, summarizes or complements their presentation, the images that accompany their talk, the questions and debate topics developed to feed the debate, and any other addenda they consider necessary to support their understanding of the topic.</p>	
Literature and Study Materials	A reader will be distributed via Blackboard/Brightspace	
Assessment	<p>Each student is responsible to elaborate on her own reflections regarding the course, the debates, the literature that will be provided and suggested, and her own graduation process, by producing an individual position paper (aprox. 2000 2500 words), following scientific standards of writing and structuring her topics (acknowledging a state of the art for a particular discussion, for example) towards the construction of a methodological apparatus in affinity with her own intentions and inclinations.</p> <p>Upon request, specific tutoring/workshops for this second component are available, in the same group format utilized for the preparation of the sessions.</p> <p>In order to attend one of these tutorials, interested students must submit a full draft of their essay, including their name, student number and current chair/graduation studio. The submission deadline for this draft will be specified at the beginning of the period.</p> <p>The course coordination will group the drafts and submit them to available tutors, by topic affinity. These tutors will read the drafts and subsequently organize a workshop with small groups of students. The aim of these workshops are to clarify doubts, elaborate on formal and stylistic concepts, and contribute thematically to the development of the final versions of the papers.</p> <p>The fact that extra tutoring is available does not mean that the students are not encouraged to also seek additional support from their teachers in the other courses that constitute the graduation track.</p> <p>Position papers are expected to be approximately 2000 2500 words in length, and should comply with academic and scientific standards in terms of form and style.</p> <p>The fundamental aim of this assignment is to enable students to formulate a sound and consistent architectural position, in the</p>	

face of the broader discussions presented as a partial state of the art of professional discussion, both within our Faculty and in contemporary architecture culture.

Articulating a position requires knowledge and understanding of a diverse array of postures, which are carefully considered in response to the problems of our time. Getting acquainted with diverse sources, authors and architectural examples; articulating the information contained in these sources; abstracting and operating with the useful and/or relevant ideas they represent; and (hopefully) further elaborating them into progressive architectural models; are all goals of this exercise.

It is assumed that the reflections generated during the course, and the resulting position paper, are active components of the broader exploration that is the graduation project. Research, reflection, discursive elaboration and historical contextualization are fundamental parts of a complete architectural intervention, meant to perform in site- and cultural-specific conditions, but also in the broader intellectual framework that is the architecture of our time.

In this sense, reflections should elaborate on the central concepts, methods and tools employed in the development of the architectural explorations leading to the Masters degree, at a level that transcends the simple description of steps taken in the elaboration of a project.

Cases of plagiarism will be dealt with according to standard procedures established by the corresponding authorities within the University.

Special Information

Each period will include a normal deadline for the presentation of the final position papers. Papers handed in within this deadline will be graded normally.

An extra hand-in moment will be offered for late papers, around the middle of the following academic period. Papers presented for this extra hand-in moment will only be evaluated in terms of pass (6,0/10,0) and fail (5,0/10,0 and under).

Remarks

Position papers will be evaluated on the following items:

- Has a question been clearly defined?
- Has the question been developed beyond its initial formulation?
- Does the paper acknowledge a state of the art, regarding this question?
- Has a position been taken, in relation to this state of the art?
- Is the paper coherent/concise?
- Does the paper follow a clear methodology?
- Are the sources pertinent, and well used?
- Is the language adequate?

Period of Education

Lectures take place during the first quarter of the period.

The second quarter of the period is used for the production of final position papers.

Individualized tutoring is offered upon request, to students who require extra help in the process of writing their papers, during this second quarter.

Course evaluation

The course will be graded on the basis of a final, position paper, worth 100% of the grade assignable to the Lecture Series. This position paper is expected to range between 2000-2500 words, and must be submitted before a specified deadline.

Only papers accepted and graded with a mark above 5,0/10,0 will be eligible for re-takes or further corrections.

Close attention must be paid to the fact that a passing grade in this course is necessary to apply for a Studio P4 presentation. Please note that the deadline for the presentation of these papers is indicated since the very beginning of the semester. This should allow you to plan the development of your essay without interfering with other deadlines. Conflicts with other courses should be negotiated with the Board of Examiners.

AR3AD030	Global Housing Research Seminar	6
Responsible Instructor	N.J. Amorim Mota	
Course Coordinator	N.J. Amorim Mota	
Instructor	N.J. Amorim Mota	
Education Period	1	
Start Education	1	
Exam Period	none	
Course Language	English	
Course Contents	The Global Housing Research Seminar explores a pedagogical approach based on the development of critical positions to the design of affordable housing. The seminar will investigate the interrelation between patterns of inhabitation and the design decision-making process in housing projects.	
Study Goals	<p>By the end of this course students will be able to:</p> <ol style="list-style-type: none"> 1. Identify relationships between housing typologies and patterns of inhabitation; 2. Analyse and describe the main generative components of a housing project; 3. Synthesize the main typological and compositional aspects of a housing project using adequate written and visual media; 4. Compose an analytical survey using adequate communication tools; 5. Elaborate a critical synthesis of the research outcome using meaningful visual communication. 	
Education Method	The course Global Housing Research Seminar is divided in two instructional components. Analytical Survey (group work) and Critical Reflection (individual). The Analytical Survey will be mainly based on empirical studies developed by the students, followed by tutorial sessions with the instructors. The Critical Reflection will be based on in-class peer-review sessions, presentations and thematic discussions.	
Course Relations	The Global Housing Research Seminar is strongly related with the theme and contents developed in the MSc 3 Dwelling Global Housing Graduation Studio (AR3AD132).	
Literature and Study Materials	<p>The course will use the following publications as main textbook references:</p> <p>Alexander, C., Ishikawa, S., & Silverstein, M. (1977). <i>A Pattern Language: Towns, Buildings, Construction</i>. OUP USA.</p> <p>Desai, D. (2002). The Ethnographic Move in Contemporary Art: What Does It Mean for Art Education? <i>Studies in Art Education</i>, 43(4), 307-323.</p> <p>Foster, H. (1996). <i>The Return of the Real: The Avant-garde at the End of the Century</i>. MIT Press.</p> <p>Gude, O. (2007). Principles of Possibility: Considerations for a 21st-Century Art & Culture Curriculum. <i>Art Education</i>, 60(1), 61-7.</p> <p>Powell, K. (2010). Viewing Places: Students as Visual Ethnographers. <i>Art Education</i>, 63(6), 44-53.</p> <p>Witold Rycbyznski et al. (1984). <i>How the Other Half Builds: Space</i>. Centre for Minimum Cost Housing.</p>	
Assessment	The evaluation method in the course Global Housing Research Seminar comprises a combination of summative and formative assessments. The group work will be the object of a summative assessment. In-class peer-to-peer learning activities and tutorial feedback are the main formal methods of formative assessment.	
Period of Education	First Semester (week 1.1 - week 2.6)	

AR3AD035	Global Housing Tutorial	3
Responsible Instructor	N.J. Amorim Mota	
Course Coordinator	N.J. Amorim Mota	
Instructor	N.J. Amorim Mota	
Education Period	1	
Start Education	1	
Exam Period	none	
Course Language	English	
Summary	This course will explore and discuss historical references and current examples of policies and practices related with the production of Affordable Housing. The course will be particularly focused on the theme of Affordable Housing in the Global Urban South.	
Course Contents	The students will participate in a series of tutorial sessions addressing different methods, positions, policies and design approaches related with housing issues.	
Study Goals	By the end of this course students will be able to: 1. Produce a critical review of the literature; 2. Contribute feedback and critical reviews to the works developed by her/his peers; 2. Elaborate a problem statement; 2. Formulate a research question, goals and methodology. 4. Elaborate a critical essay using academic writing protocols;	
Education Method	The course Global Housing Tutorial is divided in three instructional components. The first one comprises in-class discussions and quizzes on case studies and reference texts. The second component is based on tutorial sessions related with academic writing and reference protocols. The third component is based on peer review feedback and public presentations.	
Course Relations	The Global Housing Research Seminar is strongly related with the theme and contents developed in the MSc 3 Dwelling Global Housing Graduation Studio (AR3AD132).	
Literature and Study Materials	The course will use the following publications as main references: Bredenoord, Jan, Paul Van Lindert, and Peer Smets, eds. Affordable Housing in the Urban Global South: Seeking Sustainable Solutions. Abingdon, Oxon: Routledge, 2014. Urban, Florian. Tower and Slab: Histories of Global Mass Housing. Oxon and New York: Routledge, 2013. Wakely, Patrick. Housing in Developing Cities: Experience and Lessons. Abingdon, Oxon: Routledge, 2018. Swales, John M., and Christine B. Feak. Academic Writing for Graduate Students: Essential Tasks and Skills. 3rd edition. Ann Arbor: University of Michigan Press ELT, 2012.	
Assessment	The evaluation of the work produced for the course Global Housing Tutorial comprises a combination of the summative and formative assessments of each assignment: Quizzes, Peer Review and Essay.	
Period of Education	Autumn Semester (week 1.1 - week 2.6)	

AR3AD132	Dwelling Graduation Studio: Global Housing	15
Responsible Instructor	N.J. Amorim Mota	
Course Coordinator	Ir. P.S. van der Putt	
Instructor	Prof.ir. D.E. van Gameren	
Contact Hours / Week	X/X/0/0	
Education Period	1 2	
Start Education	1	
Exam Period	none	
Course Language	English	
Summary	<p>This graduation studio deals with pressing dwelling issues in the developing world, as well as with the increasing cross-cultural character of contemporary architectural practice. The studio challenges students to find appropriate methods for the analysis and design in unfamiliar cultural contexts. They are invited to find a critical balance between local cultures and techniques on the one hand, and global developments on the other. After an intense period of projective research and site surveys, the participants in the studio develop a design hypothesis for alternative forms of dwelling and collectivity, based on the physical and social structures of the site selected.</p>	
Course Contents	<p>The ambition of this course is to develop an architectural project for the design of affordable housing in the global urban South. The studio aims to produce knowledge on architectural concepts, models and instruments to deal with territories facing the challenge of rapid urban growth. The studio stimulates research on design approaches that suggest sustainable logics of modernization for emerging urban territories. Participants will be stimulated to reconsider established modes of analysis and intervention to promote the emergence of urban welfare spaces; places of everyday wellbeing, commonality, conviviality, comfort, security and health.</p>	
Study Goals	<p>Upon completion of the course the student should be able to:</p> <ol style="list-style-type: none"> 1. Investigate processes of urban transformation using appropriate research methods; 2. Develop analytical research to typological and morphological housing figures; 3. Analyse and communicate the social and spatial practices of a human settlement using descriptive and mapping techniques; 4. Write and present a problem statement and a research question using academic writing protocols; 5. Formulate a design hypothesis based on a problem statement and research question; 6. Design a project for a housing complex, including the definition of appropriate building techniques and construction systems. 7. Produce meaningful visual and physical outputs to communicate the project to an audience of experts; 8. Discuss the design principles of a housing project with other stakeholders. 	
Education Method	<p>The graduation report demonstrates the students ability to employ moral sensibility, analysis, creativity, judgment, decision and argumentation skills regarding Architectural ethics and his/her future role as architect. The individual graduation report should not only contain an elaboration regarding the Graduation Projects societal and disciplinary relevance, but has to also address design ethics and the way in which intercultural issues were addressed in the graduation project.</p>	
Education Method	<p>The tutorial system is the main educational method used in this course. The tutorial sessions will be focused on integrating research and design in the studio work.</p>	
Education Method	<p>Throughout the whole semester the work for the course MSc 3 Global Housing Graduation Studio will be produced either in group or individually. While the fundamental research will be developed as team work, the problem statement and the design hypothesis will be individual. The teams will be formed based on the members shared interests and personal preferences, whenever possible. In case of lack of agreement to form the group the studio coordinator will act as mediator.</p>	
Education Method	<p>The studio's weekly meetings are scheduled in such a way that every group or individual student should have the opportunity to discuss the progress of his/her/their work with two instructors.</p>	
Education Method	<p>The tutorial sessions of this course are organised in four consecutive phases.</p>	
Education Method	<p>Phase I _ Design Research / Projective Mapping In the first phase the students, organised in groups, will build up a collective knowledge base of the site's process of urban transformation and main housing figures. Using appropriate descriptive and mapping techniques, the students will produce a research report with a synthesis of the data collected, including information on relevant sources and bibliographic references.</p>	
Education Method	<p>Phase 2 _ Field Trip / Site Survey The students enrolled in this course will travel to the project's location. The Field Trip will include several activities, as follows: a) Visits, Lectures, and Study trips; b) Site survey (measurements, photographic survey, interviews and other documentation relevant to produce a report on the site's social and spatial patterns of inhabitation; c) Design Workshop.</p>	
Education Method	<p>Phase 3 _ Patterns of Inhabitation After the field trip the students (organised in groups) should prepare a research report, including an analytical account of the sites social and spatial practices. The report should be presented in two formats: a) A Visual Essay; b) An oral presentation with adequate visual and multimedia.</p>	
Education Method	<p>Phase 4 _ Design Hypothesis Drawing from the activities developed in the first four phases each student will develop his/her design hypothesis for a housing project, including its extensions (the collective and public space). The project can be for a single residential building as well as an ensemble or other types of housing, depending on the position taken and the outcome of the previous phases. The proposal should include a choice of site, a draft proposal, a model, and a reflection on the projects goals regarding the social, spatial and environmental aspects of the proposal as well as an explanation of the key architectural elements guiding the design.</p>	
Course Relations	<p>This course is related with the following courses: AR3AD030 - Global Housing Research Seminar AR3AD035 - Global Housing Tutorial</p>	
Literature and Study Materials	<p>Abrams, Charles. <i>Mans Struggle for Shelter in an Urbanizing World</i>. Cambridge, Massachusetts: M.I.T. Press, 1964.</p>	
Literature and Study Materials	<p>Alexander, Christopher, Sara Ishikawa, and Murray Silverstein. <i>A Pattern Language: Towns, Buildings, Construction</i>. OUP USA, 1977.</p>	
Literature and Study Materials	<p>Bredenoord, Jan, Paul Van Lindert, and Peer Smets, eds. <i>Affordable Housing in the Urban Global South: Seeking Sustainable Solutions</i>. Abingdon, Oxon: Routledge, 2014.</p>	
Literature and Study Materials	<p>Correa, Charles. <i>A Place in the Shade: The New Landscape & Other Essays</i>. Penguin Books India, 2010.</p>	
Literature and Study Materials	<p>Davis, Mike. <i>Planet of Slums</i>. London; New York: Verso, 2007.</p>	

Gadanh, Pedro, ed. Uneven Growth: Tactical Urbanisms for Expanding Megacities. New York, NY: The Museum of Modern Art, New York, 2014.

Gameren, Dick van, Frederique van Andel, and Pierijn van der Putt, eds. Global Housing: Affordable Dwellings for Growing Cities. DASH, 12/13. Rotterdam: NAI 010 Publishers, 2015.

Mota, Nelson, and Dick van Gameren. Affordable Housing and Sustainable Development: A Tale of Two Systems. The Architectural Review, April 2016.

Saunders, Doug. Arrival City: How the Largest Migration in History Is Reshaping Our World. New York: Pantheon Books, 2010.

Tippel, Graham, and Kenneth G. Tippel. Housing the Poor in the Developing World. London and New York: Routledge, 2003.

Urban, Florian. Tower and Slab: Histories of Global Mass Housing. Oxon and New York: Routledge, 2013.

Assessment

Throughout the MSc 3 graduation process there will be one obligatory progress review (P1) and one formal assessment (P2).

Evaluation Criteria:

- Personal Development (motivation, planning, evaluation)
- Thematic Research (subject, problem statement, objective, research questions)
- Design Research (formulation / analysis of the initial design brief)
- Design (Preliminary design theme, Preliminary choice of context)
- Presentation (written, oral, drawings, graphics and models)
- Process (academic attitude: evidence based, logical, critical)

Special Information

The maximum marking period is 10 work days.

Remarks

Participating in this studio requires a field trip to the project's site for approximately two weeks in the autumn semester (late October/early November). The cost of the field trip is approximately 1.500,00. Each participant in the studio should support this cost.

Period of Education

Semester

Course evaluation

For the course evaluations see: <http://kwaliteitszorg.bk.tudelft.nl/>

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

Designing for Care

AR3A160	Lecture Series Research Methods	6
Responsible Instructor	Dr.ir. P.J. Teerds	
Responsible Instructor	Dr.ir. K.M. Havik	
Course Coordinator	Dr.ir. P.J. Teerds	
Instructor	Dipl.ing. R.A. Gorny	
Instructor	M.F. Berkers	
Contact Hours / Week x/x/x/x	28 hours per quarter	
Education Period	1 3	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	General Master 2 level of knowledge.	
Course Contents	<p>The lecture series will allow MSc 3 students from all the departments and chairs of our Faculty to reflect on and explore a series of methodological approaches, which should strengthen their architectural positions in the graduation studio, towards the conclusion of their formative process and the consequent obtainment of the corresponding degree.</p>	
Study Goals	<p>Students involved in this course are expected to operate at a final year Masters level, meaning they are responsible for performing critically within the series of concepts presented in the course; as well as individually fulfilling course requirements such as being acknowledged with the basics of scientific writing, formulating hypotheses and investigating at a level equivalent to their standing within the curricular track.</p> <p>This lecture series will address scientific integrity to make sure that architecture students develop the necessary skills for integer research approaches while being aware of the societal, political, physical and environmental impacts their research and design work has.</p> <p>The lecture series aims to:</p> <ul style="list-style-type: none"> - Take advantage of the magnitude and diversity of the series. The line-up of lecturers, paired to the differences among the academic tracks followed by students from several chairs and departments, should substantially enhance each discussion, and promote creative approaches to each of the topics discussed. - Endow the students with clear knowledge of the heuristic nature of their work. The central thesis of the course is that all architectural activity is an exploration within identifiable disciplinary fields of experimentation, based on equally identifiable epistememes. Awareness of that explorative/cognitive capacity of architecture we sustain is a crucial element in the formation of an architect. - Present the students with a selection of relevant and progressive architectural methodologies and analytical strategies that are currently being used and discussed within the A+BE academic community and in other outstanding educational institutions. - Invite students to become engaged in these discussions actively, in order for their graduation processes to constitute real contributions to the professional debate that feeds our Faculty. It is expected that, with the information provided in this course, each graduation process aims to produce additional architectural knowledge in the face of established and ongoing research programs. - Focus on moral sensibility, analysis, creativity, judgment, and skills regarding architectural ethics when developing specific expertise. 	
Education Method	<p>The course comprises two, parallel activities: A series of lectures and the preparation of a position paper. The lecture series is made up of seven sessions. Six have defined topics, the first is introductory. Each lecture session includes a 30+ min. presentation by a lecturer, a 30+ min presentation by a group of students, and a 30+ minute series of Q&A, presented to both lecturer and students. Each guest lecturer is responsible for submitting on the fore a reference text for students to prepare the session, and a paper of her authorship that exposes, summarizes or complements her presentation. Both documents will be made available to the whole group of students with sufficient anticipation.</p> <p>A group of students will be responsible for preparing each lecture. These groups will be formed during the course intro, and will divide themselves into a subgroup in charge of presenting the topic, and other subgroups in charge of preparing a series of debate topics and questions, for the closing discussion.</p> <p>The whole group of students in charge of preparing each session will participate in a workshop, in which they will be guided in the development of their presentation and the construction of different positions within the chosen topic, looking forward to the debate. These workshops will take place on Monday mornings, and will be tutored by the coordinators of the lecture series and/or staff from the chair of Methods and Analysis.</p> <p>Before entering each lecture session, the group of presenting/debating students will hand in a paper of their authorship (2000 words, aprox.) that exposes, summarizes or complements their presentation, the images that accompany their talk, the questions and debate topics developed to feed the debate, and any other addenda they consider necessary to support their understanding of the topic.</p>	
Literature and Study Materials	A reader will be distributed via Blackboard/Brightspace	
Assessment	<p>Each student is responsible to elaborate on her own reflections regarding the course, the debates, the literature that will be provided and suggested, and her own graduation process, by producing an individual position paper (aprox. 2000 2500 words), following scientific standards of writing and structuring her topics (acknowledging a state of the art for a particular discussion, for example) towards the construction of a methodological apparatus in affinity with her own intentions and inclinations.</p> <p>Upon request, specific tutoring/workshops for this second component are available, in the same group format utilized for the preparation of the sessions.</p> <p>In order to attend one of these tutorials, interested students must submit a full draft of their essay, including their name, student number and current chair/graduation studio. The submission deadline for this draft will be specified at the beginning of the period.</p> <p>The course coordination will group the drafts and submit them to available tutors, by topic affinity. These tutors will read the drafts and subsequently organize a workshop with small groups of students. The aim of these workshops are to clarify doubts, elaborate on formal and stylistic concepts, and contribute thematically to the development of the final versions of the papers.</p> <p>The fact that extra tutoring is available does not mean that the students are not encouraged to also seek additional support from their teachers in the other courses that constitute the graduation track.</p> <p>Position papers are expected to be approximately 2000 2500 words in length, and should comply with academic and scientific standards in terms of form and style.</p> <p>The fundamental aim of this assignment is to enable students to formulate a sound and consistent architectural position, in the</p>	

face of the broader discussions presented as a partial state of the art of professional discussion, both within our Faculty and in contemporary architecture culture.

Articulating a position requires knowledge and understanding of a diverse array of postures, which are carefully considered in response to the problems of our time. Getting acquainted with diverse sources, authors and architectural examples; articulating the information contained in these sources; abstracting and operating with the useful and/or relevant ideas they represent; and (hopefully) further elaborating them into progressive architectural models; are all goals of this exercise.

It is assumed that the reflections generated during the course, and the resulting position paper, are active components of the broader exploration that is the graduation project. Research, reflection, discursive elaboration and historical contextualization are fundamental parts of a complete architectural intervention, meant to perform in site- and cultural-specific conditions, but also in the broader intellectual framework that is the architecture of our time.

In this sense, reflections should elaborate on the central concepts, methods and tools employed in the development of the architectural explorations leading to the Masters degree, at a level that transcends the simple description of steps taken in the elaboration of a project.

Cases of plagiarism will be dealt with according to standard procedures established by the corresponding authorities within the University.

Special Information

Each period will include a normal deadline for the presentation of the final position papers. Papers handed in within this deadline will be graded normally.

An extra hand-in moment will be offered for late papers, around the middle of the following academic period. Papers presented for this extra hand-in moment will only be evaluated in terms of pass (6,0/10,0) and fail (5,0/10,0 and under).

Remarks

Position papers will be evaluated on the following items:

- Has a question been clearly defined?
- Has the question been developed beyond its initial formulation?
- Does the paper acknowledge a state of the art, regarding this question?
- Has a position been taken, in relation to this state of the art?
- Is the paper coherent/concise?
- Does the paper follow a clear methodology?
- Are the sources pertinent, and well used?
- Is the language adequate?

Period of Education

Lectures take place during the first quarter of the period.

The second quarter of the period is used for the production of final position papers.

Individualized tutoring is offered upon request, to students who require extra help in the process of writing their papers, during this second quarter.

Course evaluation

The course will be graded on the basis of a final, position paper, worth 100% of the grade assignable to the Lecture Series. This position paper is expected to range between 2000-2500 words, and must be submitted before a specified deadline.

Only papers accepted and graded with a mark above 5,0/10,0 will be eligible for re-takes or further corrections.

Close attention must be paid to the fact that a passing grade in this course is necessary to apply for a Studio P4 presentation. Please note that the deadline for the presentation of these papers is indicated since the very beginning of the semester. This should allow you to plan the development of your essay without interfering with other deadlines. Conflicts with other courses should be negotiated with the Board of Examiners.

AR3AD011	Dutch Housing Research Seminar	6
Responsible Instructor	Ir. P.S. van der Putt	
Course Coordinator	Ir. P.S. van der Putt	
Education Period	1 3	
Start Education	1 3	
Exam Period	Different, to be announced	
Course Language	English	
Course Contents	Students of the Dutch Housing Research Seminar study the typological features of several experimental and/or visionary housing schemes around the world. They will then engage in a design exercise in which the typological DNA of two, three, or four of these projects will be combined into a new scheme. The seminar stimulates the participants to relate research with design and analysis with project.	
Study Goals	By the end of this course, students will be able to:	
	<ol style="list-style-type: none"> 1. Recognize housing typologies and morphological patterns; 2. Analyse and describe the main generative components of a housing project; 3. Synthesize the main typological and compositional aspects of a housing project using adequate written and visual media; 4. Compose and present a research report using standard academic protocols; 5. Apply the results of an analytical study to a new situation; 6. Design a project for a housing settlement using adequate written, graphic and physical research tools; 	
Education Method	The course Dutch Housing Research Seminar is divided in two instructional units. The first one comprises an individual assignment and the second unit involves group work. The outcome of the first part of the seminar, a critical case study analysis, will be presented in two complementary ways: an analytical report and an oral presentation. The outcome of the second part will be a group reflection on case studies related with the theme of the Seminar.	
	Each regular session of the course is divided in two parts. In the first part of the session, a specific theme or case study will be discussed. In the second part, the instructors will meet with the students individually or in small groups to give feedback on the progress of the assignments.	
	<p>Quizzes / Flipped Classroom</p> <p>The concept of flipped classroom will be adopted regularly, making available in beforehand a great deal of the information online on Brightspace. This information should be analysed during the self-study hours and then critically reviewed in the classroom. In total, there will be three quizzes and group discussions related with the theme of the session.</p>	
Course Relations	The Dutch Housing Research Seminar is strongly related with the theme and contents developed in the MSc 3 Dwelling Dutch Housing Graduation Studio (AR3AD131).	
Books	The course will use the following publications as main textbook references:	
	<p>Bosma, Koos, Dorine van Hoogstraten, and Martijn Vos. <i>Housing for the Millions: John Habraken and the Sar (1960-2000)</i>. Rotterdam: NAI Publishers, 2000.</p> <p>Urban, Florian. <i>Tower and Slab: Histories of Global Mass Housing</i>. London: Routledge, 2012.</p> <p>Wakeman, Rosemary. <i>Practising Utopia: An Intellectual History of the New Town Movement</i>. Chicago and London: The University of Chicago Press, 2016.</p>	
Assessment	<p>The evaluation method in the course Dutch Housing Research Seminar comprises a combination of summative and formative assessments.</p> <p>The individual assignment and the group work will be the object for the summative assessments. The quizzes and the in-class peer-to-peer learning activities are the main formal methods of formative assessment.</p>	
Period of Education	First and second semester (week 1.4 - week 2.4 / week 3.4 week 4.4)	

AR3AD021	Dutch Housing Tutorial	3
Responsible Instructor	Ir. P.S. van der Putt	
Course Coordinator	Ir. P.S. van der Putt	
Education Period	1 3	
Start Education	1 3	
Exam Period	Different, to be announced	
Course Language	English	
Course Contents	<p>This course helps the Dutch Housing Graduation students with the research report that is part of their studio work. It guides the development of their ideas and the making of their research report.</p> <p>As part of the studio assignment, the students produce a research report. Some items of this report fall under the Research Tutorial course and will be assessed as such.</p> <p>The students will participate in tutorial sessions all through the semester. During this time they will work on, present and receive feedback on three deliverables (which will be integrated in the design studios research report):</p> <ol style="list-style-type: none"> 1. A manifesto about the city of tomorrow; 2. A plan analysis into a topic-related issue; 3. A summary of the design studios research report. 	
Study Goals	<p>By the end of this course students are able to:</p> <ol style="list-style-type: none"> 1. Formulate a vision on the city of tomorrow (a manifesto); 2. Perform topical and to-the-point plan analysis; 3. Summarize their research reports 	
Education Method	Seminars and peer-reviewed tutorial sessions.	
Course Relations	<p>The Dutch Housing Research Tutorial is strongly related with the theme and contents developed in the MSc 3 Dutch Housing Graduation Studio (AR3AD131).</p> <p>The Dutch Housing Research Tutorial is strongly related with the theme and contents developed in the MSc 3 Dutch Housing Graduation Studio (AR3AD131).</p>	
Assessment	<p>The deliverables will be assessed as follows:</p> <p>Manifesto: relevance op topic, deployed writing skills, conciseness;</p> <p>Plan analysis: strength of research question, proposed method, results, conclusions, discussion;</p> <p>Summary: Conciseness, accuracy.</p>	
Period of Education	Autumn and Spring Semester (week 1.1 - week 2.6)	

AR3AD133	Dwelling Graduation Studio: Designing for Care in an Inclusive Environment	15
Responsible Instructor	Dr.ir. B.M. Jurgenhake	
Course Coordinator	Dr.ir. B.M. Jurgenhake	
Contact Hours / Week x/x/x/x	X / X / 0 / 0	
Education Period	1 2	
Start Education	1	
Exam Period	none	
Course Language	English	
Course Contents	Students will design a housing project that is dedicated to the specific topic of housing for elderly in an inclusive living environment. This can be part of a transformation of an existing elderly home, or a design of a new building on a location in one of the Dutch cities. As we work together with a housing association, they will help with a range of buildings that need transformation and sites for new development as well. Research is an important element of the course.	
Study Goals	<p>Upon completion of the course the student should be able to:</p> <ol style="list-style-type: none"> 1. Evaluate the results of a participatory observation and analytical study to formulate a critical reflection on the design assignment; 2. Make a first suggestion design for a transformation or new housing project; 3. Formulate and apply strategies for an inclusive living environment, meaning a community in which care plays an important role 4. Compose and present a problem statement; 5. Formulate a design hypothesis; 6. Identify appropriate building techniques and construction systems to be employed in the design proposal; 7. Produce meaningful visual and physical outputs to communicate the project to an audience of experts; 8. Discuss the design principles of a housing project with other stakeholders. 	
Education Method	<p>The graduation report demonstrates the students ability to employ moral sensibility, observation methods and analysis, creativity, judgment, decision and argumentation skills regarding Architectural ethics and his/her future role as architect. The individual graduation report should not only contain an elaboration regarding the Graduation Projects societal and disciplinary relevance, but has to also address design ethics and the way in which interdisciplinary and intercultural issues were addressed in the graduation project.</p>	
Assessment	<p>In the first half of the semester studio work is devoted to the group research part, done in small groups, and the first individual design concept. In the second part of the semester, after the P1 presentation, emphasis will shift to the design. Concepts will be tested, among others by making models and by discussions with the housing association specialized in housing the elderly. The P2 presentation concludes the MSc 3 which involves the completed research report inclusive the conclusions of the research, a masterplan on neighbourhood level, and a preliminary design of the building.</p>	
Assessment	<p>The assessment of the work developed by the students will be determined by the following criteria:</p> <ol style="list-style-type: none"> 1. Personal Development: Ability to self-reflect on the personal motivations to work on the assignment, capacity to elaborate a realistic planning, and demonstration of the awareness to evaluate his/her own strengths and weaknesses. 2. Research and Analysis: Ability to identify and interpret relevant information out of the research and of source material used to support the development of the design assignment. 3. Architectural Project: Ability to experiment, test and project concepts, processes, forms and materials demonstrating technical competence. 4. Materialization and Technology: Ability to articulate knowledge on the architecture discipline with other building technology, materials and construction processes. 5. Communication: Ability to create meaningful oral, written and visual communication, prepared using appropriate conventions and media. 6. Process: Demonstration of a critical attitude to the design assignment and ability to work collaboratively and independently within the main standards of the architecture profession. 7. Interdisciplinary Research: Ability to work with research methods, common in the field of anthropological and social research, like observation and interviews and combine them with the more visual methods of architectural research. <p>Results:</p> <p>Study Plan with Problem Statement, Goal and Method description; Research Report, made individually or in small groups; Site assignment analysis report (group work); Design Proposal, including design programme; All elements are integrated into an individual Graduation Report.</p>	
Period of Education	Fall semester 2018/19	
Maximum aantal deelnemers	8	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

MSc 4 Architecture and Dwelling

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

Compulsory Choice MSc4

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

Dutch Housing

AR4AD110	Dutch Housing Graduation Studio	30
Responsible Instructor	Ir. P.S. van der Putt	
Course Coordinator	Ir. P.S. van der Putt	
Education Period	None (Self Study)	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Course Contents	Continuation of AR3AD131	
Study Goals	<p>Upon completion of the studio the student should be able to:</p> <ul style="list-style-type: none"> - Develop a preliminary design scheme into the definitive project on his own, which is assessed for functional, spatial and aesthetic qualities; - Integrate building technology in adequate ways into the architectural design; - Integrate knowledge of industries, organizations and methodologies which play a part in the translation of a concept into a building; - Reflect on the design process and argument in a scientific way; - Present both the process and the product, based on a clear concept, in a public meeting and to position this within the field of the current architectural discourse; - Synthesize harmoniously requirements of building technology and the architectural design; - Apply the fundamental knowledge related to building technology competently; forming the frame, constructive systems, details and climate conditions; - Demonstrates scientific approach towards designing; - Place the characteristics of the building technologies of the design in the broader context of community and culture; - Present the technical considerations of the design process and the end result in a clear and systematic way to a broad public, in the form of drawings, words, texts and schemes; - Undertake the relevant research and preparation of a project; - Communicate and defend complex design ideas at an advanced level through verbal, visual and written media to specialist and non-specialist audiences; - Reflect on his or her ethical position as a designer and on the ethical component of his or her design project. <p>The graduation report demonstrates the students ability to employ moral sensibility, analysis, creativity, judgment, decision and argumentation skills regarding Architectural ethics and his/her future role as architect. The individual graduation report should not only contain an elaboration regarding the Graduation Projects societal and disciplinary relevance, but has to also address design ethics and the way in which intercultural issues were addressed in the graduation project.</p>	
Education Method	Design guidance: 112 uur Self study: 728 uur	
Assessment	<p>Assessment</p> <p>The work of the students will be assessed on the intermediate presentation (P3), the P4 (Go-No Go) presentation and the P5 final presentation.</p> <p>The assessment of the work developed by the students will be determined by the following criteria:</p> <ol style="list-style-type: none"> 1. Personal Development: Ability to self-reflect on the personal motivations to work on the assignment, capacity to elaborate a realistic planning, and demonstration of the awareness to evaluate his/her own strengths and weaknesses. 2. Research and Analysis: Ability to identify and interpret relevant information or source material used to support the development of the design assignment. 3. Architectural Project: Ability to experiment, test and project concepts, processes, forms and materials demonstrating technical competence. 4. Materialization and Technology: Ability to articulate knowledge on the architecture discipline with other building technology, materials and construction processes. 5. Communication: Ability to create meaningful oral, written and visual communication, prepared using appropriate conventions and media. 6. Process: Demonstration of a critical attitude to the design assignment and ability to work collaboratively and independently within the main standards of the architecture profession. 	
Period of Education	Q1/Q2/Q3/Q4	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

Global Housing

AR4AD130	Global Housing Graduation Studio	30
Responsible Instructor	N.J. Amorim Mota	
Course Coordinator	N.J. Amorim Mota	
Contact Hours / Week x/x/x/x	0 / 0 / X / 0	
Education Period	None (Self Study)	
Start Education	3	
Exam Period	none	
Course Language	English	
Summary	This course is the follow up to the MSc 3 graduation studio Global Housing (AR3AD132). The tutorial sessions and the guidance in this course aims at guiding the development of the graduation project on the basis of research by design.	
Course Contents	In the MSc4 Graduation Studio Global Housing, each students design hypothesis should be further developed and elaborated to deliver a project for an affordable housing complex. The preliminary research developed previously in the MSc3 period should be further elaborated and integrated with the students position regarding the societal issues discussed in the problem statement. Each student should bring about a clear articulation between problem statement, research question, and design methods. Furthermore, the project should explore a meaningful articulation between the urban realm, the sphere of the building, and the dwelling unit. It should also address the current challenges in the production of affordable housing in the site selected to develop the project, considering a critical interrelation between governance, design and technology. The design methods and the projects strategies should be supported and communicated by a well-documented research booklet, drawings, physical models, and multimedia.	
Study Goals	<p>Upon completion of the course the student should be able to:</p> <ol style="list-style-type: none"> 1. Write and present a problem statement and a research question using academic writing protocols; 2. Formulate a design hypothesis based on a problem statement and research question; 3. Elaborate a graduation report, including the synthesis of the design research, the design process and the project; 4. Design a project for a housing complex, including its integration with the social and physical context. 5. Design a project for a housing complex, supported by a clear definition of the structural principles, climate design and materialization. 6. Produce meaningful visual and physical outputs to communicate the project to an audience of experts; 7. Deliver a public presentation of a project for a housing complex. 	
Education Method	<p>This course is organised in six groups (phases) of tutorial sessions, addressing the following themes:</p> <p>PHASE 1: MATERIAL AND TECHNOLOGY PHASE 2: PROGRAM AND TYPOLOGY PHASE 3: FIRST SYNTHESIS (Seminar and P3 Presentation) PHASE 4: LAYOUT AND COMPOSITION PHASE 5: SECOND SYNTHESIS (Model and P4) PHASE 6: COMMUNICATION</p>	
Literature and Study Materials	<p>Abrams, Charles. <i>Mans Struggle for Shelter in an Urbanizing World</i>. Cambridge, Massachusetts: M.I.T. Press, 1964.</p> <p>Alexander, Christopher, Sara Ishikawa, and Murray Silverstein. <i>A Pattern Language: Towns, Buildings, Construction</i>. OUP USA, 1977.</p> <p>Bredenoord, Jan, Paul Van Lindert, and Peer Smets, eds. <i>Affordable Housing in the Urban Global South: Seeking Sustainable Solutions</i>. Abingdon, Oxon: Routledge, 2014.</p> <p>Correa, Charles. <i>A Place in the Shade: The New Landscape & Other Essays</i>. Penguin Books India, 2010.</p> <p>Davis, Mike. <i>Planet of Slums</i>. London; New York: Verso, 2007.</p> <p>Gadanho, Pedro, ed. <i>Uneven Growth: Tactical Urbanisms for Expanding Megacities</i>. New York, NY: The Museum of Modern Art, New York, 2014.</p> <p>Gameren, Dick van, Frederique van Anandel, and Pierijn van der Putt, eds. <i>Global Housing: Affordable Dwellings for Growing Cities</i>. DASH, 12/13. Rotterdam: NAI 010 Publishers, 2015.</p> <p>Mota, Nelson, and Dick van Gameren. <i>Affordable Housing and Sustainable Development: A Tale of Two Systems</i>. <i>The Architectural Review</i>, April 2016.</p> <p>Saunders, Doug. <i>Arrival City: How the Largest Migration in History Is Reshaping Our World</i>. New York: Pantheon Books, 2010.</p> <p>Tipple, Graham, and Kenneth G. Tipple. <i>Housing the Poor in the Developing World</i>. London and New York: Routledge, 2003.</p> <p>Urban, Florian. <i>Tower and Slab: Histories of Global Mass Housing</i>. Oxon and New York: Routledge, 2013.</p>	
Assessment	<p>Throughout the MSc 4 graduation process there will be one obligatory progress review (P3), one formal assessment (P4), and the final public presentation (P5).</p> <p>Evaluation Criteria: Spatial aspects Functional aspects Material and technical aspects Contextual aspects Socio-cultural aspects</p>	
Period of Education	Semester	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

Designing for Care

AR4AD140	Dwelling Graduation Studio: Designing for Care in an Inclusive Environment	30
Responsible Instructor	Dr.ir. B.M. Jurgenhake	
Course Coordinator	Dr.ir. B.M. Jurgenhake	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Course Contents	Continuation of AR3AD133. During the MSc 4 part of your graduation you will further develop your project on the basis of research by design.	
Study Goals	<p>Upon completion of the studio the student should be able to:</p> <ul style="list-style-type: none"> - Develop a preliminary design scheme into the definitive project on his own, which is assessed for functional, spatial and aesthetic qualities; - Integrate building technology in adequate ways into the architectural design; - Integrate knowledge of industries, organizations and methodologies which play a part in the translation of a concept into a building; - Reflect on the design process and argument in a scientific way; - Present both the process and the product, based on a clear concept, in a public meeting and to position this within the field of the current architectural discourse; - Synthesize harmoniously requirements of building technology and the architectural design; - Apply the fundamental knowledge related to building technology competently; forming the frame, constructive systems, details and climate conditions; - Demonstrates scientific approach towards designing; - Place the characteristics of the building technologies of the design in the broader context of community and culture; - Present the technical considerations of the design process and the end result in a clear and systematic way to a broad public, in the form of drawings, words, texts and schemes; - Undertake the relevant research and preparation of a project; - Communicate and defend complex design ideas at an advanced level through verbal, visual and written media to specialist and non-specialist audiences; - Reflect on his or her ethical position as a designer and on the ethical component of his or her design project. <p>The graduation report demonstrates the students ability to employ moral sensibility, analysis, creativity, judgment, decision and argumentation skills regarding Architectural ethics and his/her future role as architect. The individual graduation report should not only contain an elaboration regarding the Graduation Projects societal and disciplinary relevance, but has to also address design ethics and the way in which intercultural issues were addressed in the graduation project.</p>	
Education Method	<p>Design guidance: 112 uur Self study: 728 uur (incl. guidance and consultations in the field of construction technology and installations and carrier construction)</p> <p>Individual design task within given problem, themes and research. There is construction technology guidance and the students have the opportunity to get a number of consultations in the field of installations and carrier construction.</p>	
Assessment	<p>The work of the students will be assessed on the intermediate presentation (P3), the P4 (Go-No Go) presentation and the P5 final presentation.</p> <p>The assessment of the work developed by the students will be determined by the following criteria:</p> <ol style="list-style-type: none"> 1. Personal Development: Ability to self-reflect on the personal motivations to work on the assignment, capacity to elaborate a realistic planning, and demonstration of the awareness to evaluate his/her own strengths and weaknesses. 2. Research and Analysis: Ability to identify and interpret relevant information or source material used to support the development of the design assignment. 3. Architectural Project: Ability to experiment, test and project concepts, processes, forms and materials demonstrating technical competence. 4. Materialization and Technology: Ability to articulate knowledge on the architecture discipline with other building technology, materials and construction processes. 5. Communication: Ability to create meaningful oral, written and visual communication, prepared using appropriate conventions and media. 6. Process: Demonstration of a critical attitude to the design assignment and ability to work collaboratively and independently within the main standards of the architecture profession. 	
Period of Education	semester	
Maximum aantal deelnemers	8	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

AE

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

Semester 1, Ae

AR1A060	Delft Lectures on Architectural Design	3
Responsible Instructor	Dr.ir. S. Komossa	
Course Coordinator	Dr.ir. E.H. Gramsbergen	
Instructor	Dr.ir. E.H. Gramsbergen	
Instructor	Dr.ir. P.J. Teerds	
Instructor	Ir. L.G.K. Spoormans	
Instructor	Dr.ir. B.M. Jurgenhake	
Instructor	Ir. M.J. Smit	
Contact Hours / Week x/x/x/x	2 hours per week	
Education Period	1 3	
Start Education	1 3	
Exam Period	1 2 3 4	
Course Language	English	
Course Contents	<p>The Delft Lectures on Architecture Design highlights current issues of the architecture discipline against the background of the larger societal conditions that have an inevitable impact on the practice of design. Contemporary positions in architecture practice and theory will be discussed. Full professors, associate professors and researchers of the Delft Faculty of Architecture will address key contemporary topics, and investigate historical models and theoretical arguments while discussing the latest architecture projects as well as seminal cases.</p>	
Study Goals	<p>Key questions concern: - where do architects stand and what can they do? - which positions and practices are developed by architects? - what strategies and approaches were and are relevant?</p> <p>After completion of the course: Building on the architectural design courses of the Bachelor, the student has gained knowledge of relevant issues of the discipline of architectural design, practice and its body of knowledge, including the main theoretical concepts and models. The student is able to reflect critically on ethical positions taken by lecturers and expressed by their practises.</p>	
Education Method	<p>The student: - Has appropriate knowledge of the main issues of the discipline of architectural design, practice and its body of knowledge, including the main theoretical concepts and models. - Is aware of the larger historical development of the discipline of architectural design in relation to the main theoretical concepts and models deployed of architecture, art and technology, their application in specific cases as presented in the lecture series addressing current issues of architectural practice and society. - Is able to interpret the architectural design production, both historically and current, in terms of the concepts and models of design as discussed in the lecture series; this includes the larger context of the manifold relations between architecture, the city and society and the relations between design concepts, building production and materialization.</p>	
Assessment	<p>Double lectures (2 x 45 minutes) by full professors, associate professors and researchers of the department of Architecture and other faculty members. Lectures are concentrated in the first half of the semester, during 7 weeks. Generally, the double lectures start with introducing the 'issue', after which the 'architectural positions' are discussed. The lecture coordinators are present to introduce the speakers and the topic, and to moderate questions from the students.</p>	
Special Information	<p>The format of the examination is a digital exam with a duration of three hours, which means the examination is taken place in a specifically equipped examination hall on the campus. The maximum marking period is 10 work days.</p>	
Period of Education	Quarter	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1A065	Delft Lectures on Architectural History	3
Responsible Instructor	Prof.dr.ing. C.M. Hein	
Responsible Instructor	Dr. H.D. van Bergeijk	
Course Coordinator	Dr. H.D. van Bergeijk	
Contact Hours / Week x/x/x/x	X/X/X/X	
Education Period	2	
	4	
Start Education	2	
	4	
Exam Period	2	
	3	
	4	
	5	
Course Language	English	
Course Contents	<p>This course provides a deepening of a particular part of the knowledge that the student has gained in the earlier stages of his curriculum. It consists of a lecture series of Capita Selecta dealing with the modern architectural production from 1850 till about 1940. This year the course will focus especially on the birth of modernism in the periode from the beginning of World War I till the collapse of the stock market in 1929. De Stijl-artists and the Bauhaus will be the core of the course but also figures like Dudok, Stam and others will receive due attention. We will try to explore how the abolition of history led to a new concept of society and the underlying concepts of civitas. A belief in the machine produced also a new ethics that will have an influence on the development of society in the 20th and 21st century.</p>	
Study Goals	<p>The student</p> <ul style="list-style-type: none"> - has acquired a sufficient framework to place and value different contributions to the history of the discipline and society in general. - has gained insights on a specific theme and has deepened his knowledge - has an understanding of some of the tools of the architect from a historical point of view. - knows how to apply certain terms and is critical to their meaning - can relate to the work of architectural historians - is capable of giving a motivated and well-argued answer to the questions - has an idea of the importance of the ethical position of the architect and critic in relation to certain important issues 	
Education Method	Lectures Readings	
Literature and Study Materials	<p>All students should read:</p> <ul style="list-style-type: none"> - Michael White, De Stijl and Dutch Modernism (Manchester University Press). 	
	Further readings will, if necessary, be provided through Blackboard.	
Assessment	<p>Exam with essay questions in which the students exposes his knowledge. The student can choose from the questions. The answer to an essay question should be given in about 500 words. The knowledge that the students shows should be related to his readings and the ideas that he has formed during the course. Students are expected to challenge themselves.</p>	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1A075	Delft Seminars on Building Technology	6
Responsible Instructor	Prof.ir. M.F. Asselbergs	
Responsible Instructor	Ir. B. Gremmen	
Course Coordinator	Ir. B. Gremmen	
Contact Hours / Week x/x/x/x	40 hours per quarter	
Education Period	1 3	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	We expect that you followed the bachelor in Delft or a similar education elsewhere in the world. You have gained knowledge and practices in the next topics:	
	<ol style="list-style-type: none"> 1. constructional and structural detailing (1:20/5/2/1) 2. Structures/constructions in steel, wood and concrete 3. Climate issues, ventilation, heating and cooling 	
	Literature list for International students, master Architecture We take the content of these books as read before participating.	
	<p>Components and connections Author: Meijs, Maarten Contributor: Knaack, Ulrich Publisher: Birkhäuser Publish date: 2009 Document type: book ISBN: 978-3-7643-8669-6 Subtitle: principles of construction Classification: UJA / Building structures: general Chapters all</p>	
	<p>Building construction illustrated Author Ching, Francis D.K Publisher Wiley Publish date 2008 Document type book ISBN 978-0-470-08781-7 Edition 4th ed. Chapters all</p>	
	<p>Structures Author Schodek, Daniel L. Publisher Pearson/Prentice Hall Publish date 2008 Document type book ISBN 0-13-178939-2 Edition 6th ed. Chapters 1,2,3,4,6,7,9,10,13,14,15,16,</p>	
	<p>Climate and Architecture Author Dahl, Torben Publisher Routledge Publish date 2010 Document type book ISBN 978-0-415-56308-6 Edition 1th ed. Chapters all</p>	
	<p>Building Physics Author Linden, A.C. van der Publisher Thiemeleuhenhoff Publish date 2013 Document type book ISBN 978-9006-95155-4 Edition 1th ed Chapters all</p>	
Course Contents	In this course you will make a new technical design for a selected fragment of a case study building or a fragment. In two posters (A0) you will present your new design in technical drawings 1:20 and 1:5/1. Next you will explain the structural design, climate design and facade design in informative diagrams, illustrated with photographs and sketches.	
Study Goals	The student:	
	<ol style="list-style-type: none"> 1. Is able to use research skills in technological design issues and is able to formulate an accurate guiding theme or position, that guides the design process 2. Is able to recognize technical design problems and is able to select -in a substantiate manner- the best solution from a series of (self) formulated possible design alternatives 3. Is able to interpret and integrate the aspects of structure design, construction (facade) design and climate design in a design of a building 4. Is able to provide innovative design solutions especially with regard to the use of energy and providing comfort in building design 5. Is capable of drawing and presenting architectural and technical aspects of a design in a coherent and clear manner 	
Education Method	work groups (seminars)	
Books	<ul style="list-style-type: none"> - Millais, M., 'Building structures, a conceptual approach', London, 1999 - Jones, B., Peter, 'Modern Architecture Through Case Studies', Oxford, 2002 - Daniels, 'Advanced Building Systems, a technical guide for architects and engineers', Basel, 2003 - Frampton, 'Studies in Tectonic Cultures', The MIT Press, 1995 - Ronner, Kolliker, Rysler, 'Baustuktur', Basel, 1995 - Schittich, C., 'In detail: building skins: concepts, layers, materials Basel', Basel, 2001 - Watts, A., 'Modern Construction Handbook', Wien, 2001 - Watts, A., 'Modern Construction Facades', Wien, 2005 	

Assessment	<p>- Bachman, L.R., 'Integrated Buildings', Hoboken Wiley, 2003 - Cook, P., Primer, 'Emancipation of Structure', London, 1996 - Deplazes, D., 'Architektur Konstruieren', Basel, 2005 - Addis, B., 'Building, 3000 years of Design Engineering and Construction', London, 2007</p> <p>The examination will take place in the form of a poster (pin-up) presentation in the studio spaces. Examination will only take place during the final presentations of the course. The date of the final presentation will be announced in the seminar handout. You will receive a mark between 1 and 10 with the following meaning:</p> <p>10 Excellent 9 Very good 8 Good 7 Quite sufficient work 6 Sufficient</p> <p>5,5 Almost sufficient, can be corrected with a repair task without tutoring. Only minor deficiencies can be fixed as a repair task, decided by the tutor. Must be finished within two weeks after the final presentation. Second repair is not possible. Your work will be marked with an V.If the repair does not higher the grade up to V you will have to redo the course.</p> <p>in the case of a delayed evaluation (by request of the study counsellar), the figure will be a maximum of 6.</p> <p>5 and lower, Unsufficient, you have to redo the course next semester</p> <p>NV in case you did not finish the course</p>
Special Information	The maximum marking period is 10 work days.
Period of Education	Quarter
Concept Schedule	<p>Q1: In the weeks 1.1 up to and including week 1.6 of the 1st quarter you need to reserve in time Q3: In the weeks 3.1 up to and including week 3.5 of the 3rd quarter you need to reserve in time</p> <p>Tutoring: 40 hours Independent study: 128 hours</p> <p>Seminars will take place on Tuesdays and Fridays, mornings or afternoon. Final presentation will take place on the Friday of the week 1.6 (Q1) and 3.5 (Q3)</p>
Leerstoel	Architectural Engineering
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/

AR1AE010	EXTREME architecture	12
Responsible Instructor	Prof.dr.ing. U. Knaack	
Course Coordinator	Ir. R. Schroën	
Contact Hours / Week x/x/x/x	12 hours per week	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Course Contents	<p>The project is about building in a extreme situation, in respect to climate, location and function. Essence is the interaction between the extreme circumstances, the technical solutions, and the architecture. Extreme circumstances do request technical solutions which will be the starting point for the design development. The designer has to direct the 'engineer questions and answers', towards the articulation of the form which is based on integration of aesthetic and technology.</p> <p>For this project we will be focussing on the Maldives: a group of atolls which is expected to disappear below the rising sea level. How can we use architecture and engineering to preserve this community?</p> <p>"Die Architektur des 21 Jahrhunderts hat ihre Unschuld verloren, Gebaude müssen etwas leisten" Stefan Behnisch.</p> <p>In the end the student is able to understand technical solutions, to reflect on them, to applicate them and to transform them. And the student is able to design a coherent design result.</p>	
Study Goals	<p>Upon completion of the MSc1, 2, 3 & 4 studio trajectory the student:</p> <p>Has developed the skills in architectural design satisfying both aesthetic and technical/functional requirements. During the trajectory the complexity of the architectural design increases leading to a level fit for architectural practise.</p> <p>During this trajectory skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology and human sciences.</p> <p>Additionally, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and societys needs, including environmental aspects.</p> <p>During MSc1, 2, 3 & 4 process skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing.</p> <p>Together with the training with regard to aspects of building technology, during the MSc1, 2, 3 & 4 process skills are acquired to incorporate an understanding of the design process with regard to structural design, materialisation of buildings, comfort and climate control.</p> <p>In the end the student is able to design a healthy coherent building in extreme conditions with a focus on technical solutions: the student is able to apply, reflect and transform principles concerning climate, construction and structure.</p>	
Education Method	Design project	
Assessment	The design result including the aspects structure, climate and envelope.	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1AE020	Extreme research	6
Responsible Instructor	Prof.dr.ing. U. Knaack	
Course Coordinator	Ir. R. Schroën	
Education Period	1 3	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Course Contents	In this project students work in groups of 3 to do research on a technical subject which has consequences for architecture. The subject is related to the design subject of EXTREME, AR1AE010. Most students choose to combine these courses as they can generate some synergy.	
Study Goals	<p>Upon completion of the MSc1, 2, 3 & 4 studio trajectory the student:</p> <ul style="list-style-type: none"> Has developed the skills in architectural design satisfying both aesthetic and technical/functional requirements. During the trajectory the complexity of the architectural design increases leading to a level fit for architectural practise. During this trajectory skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology and human sciences. Additionally, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and societys needs, including environmental aspects. During MSc1, 2, 3 & 4 process skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing. Together with the training with regard to aspects of building technology, during the MSc1, 2, 3 & 4 process skills are acquired to incorporate an understanding of the design process with regard to structural design, materialisation of buildings, comfort and climate control. <p>In the end the student is able to design a healthy coherent building with a thorough understanding of the used materials. The student is able to apply, reflect and transform principles concerning climate, construction and structure.</p>	
Education Method	Design project	
Assessment	The design result including the aspects structure, climate and envelope.	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

Starting Course MSc1

ARX071	Workshops Faculty of Architecture and the Built Environment	1
Responsible Instructor	Dr.ir. R. Cavallo	
Contact Hours / Week x/x/x/x	X / 0 / 0 / 0	
Education Period	1	
Start Education	1	
Exam Period	none	
Course Language	English	
Course Contents	<p>All new MSc students of the Faculty of Architecture and the Built Environment will start the academic year 2018-2019 with a 3-day workshop programme on 30 & 31 August and 3 September 2018.</p> <p>The programme is developed in cooperation with TPM colleagues of the section "Ethics & Philosophy of Technology". With a mix of lectures, workshops and sessions guided by teachers of the faculty, you will be introduced to (design) ethics, scientific integrity and intercultural communication.</p> <p>With these workshops you will make a first start to cover the ethics engineering learning goals of the MSc programmes. Further, we wish to enhance the interaction between all new students, both Dutch and International, and to introduce you to settings, methods and procedures of the faculty.</p> <p>Participation in the workshops is mandatory for all students starting their MSc 1 programme in September.</p>	
Study Goals	- The student has a basic understanding of moral sensibility, moral analysis skills, moral creativity, moral judgement skills, moral decision-making skills and moral argumentation skills.	
Education Method	Lectures, workshops, role playing game, assignment	
Assessment	Workshops attendance Assessment: V (passed) or NV (failed)	
Special Information	<p>The academic year will start with a three day workshop programme. With a mix of lectures, workshops and sessions guided by teachers of the faculty, you will be introduced to (design) ethics, scientific integrity and intercultural communication. With these workshops you will make a first start to cover the ethics engineering learning goals of the MSc programmes. Further, we wish to enhance the interaction between all new students, both Dutch and International, and to introduce you to settings, methods and procedures of the faculty. The workshops will lay the foundation for your master studies. It is highly recommended for both Dutch and International students to participate in this programme and you will be granted 1 EC after following the whole programme. This EC will be used in your electives list Master 2/3.</p> <p>For more information see website: https://www.tudelft.nl/studenten/faculteiten/bk-studentenportal/onderwijs/master-of-science/workshops-master-students/</p>	
Period of Education	3 days	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

Semester 2, Ae

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

Compulsory

AR2A015	Delft Lectures on Architectural Sustainability	3
Responsible Instructor	Ir. P.G. Teeuw	
Responsible Instructor	Prof.dr.ir. A.A.J.F. van den Dobbelsteen	
Course Coordinator	Ir. P.G. Teeuw	
Contact Hours / Week x/x/x/x	14 hours per quarter	
Education Period	1 3	
Start Education	1 3	
Exam Period	1 3 4	
Course Language	English	
Required for	Compulsory MSc2 course for the variant (track) Architecture of the master Architecture, Urbanism and Building Sciences.	
Course Contents	This lecture series emphasizes the possibilities of architecture itself as a means to promote sustainable development. Architecture as a tool to create a more sustainable world. Rather than focus on added sustainable technologies, this course searches for architects possibilities to design good sustainable architecture and a smart organisation. A 'sustainability' driven design attitude should become a second nature for students.	
Study Goals	The student: - Has an overall understanding of the factors associated with: sustainable development related to architectural design. - Has an understanding of the architects responsibilities towards sustainable design. - Is able to position him or herself in matters concerning the relation between sustainable development in general and architecture in particular. - Is capable to formulate possible architectural solutions for building-related environmental issues and has an understanding of their social, ethical and economic dimensions.	
Education Method	Lectures and debate	
Literature and Study Materials	<ul style="list-style-type: none"> - Reader Delft Lectures on Architectural Sustainability; edition course year 2018-2019, September 2018 (Brightspace) - Jón Kristinsson, Integrated Sustainable Design, Delft/Deventer 2012 - Required reading for the exam: Chapters 2, 3, 4, 5, 8, 9, 10 (Bouwshop) - Anke van Hal, The merger of interests, Breukelen 2009 - Required reading for the exam: up to and including page 17 (Download from the internet) - Anke van Hal, The merger of interests 2.0, Breukelen 2014 - Required reading for the exam: Chapter II and III (Download from the internet) - Some parts of the website http://www.urbangreenbluegrids.com as links included in the reader; edition course year 20182019, September 2018 (Brightspace) - Some articles of the book Circulariteit op weg naar 2050? red. Peter Luscuere 2018 (download from the internet)' pages indicated in the reader; edition course year 20182019, September 2018 (Brightspace) 	
Assessment	Written exam	
Special Information	The maximum marking period is 15 work days.	
Period of Education	Quarter	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

Compulsory Choice

AR2A010	Architectural History Thesis	6
Responsible Instructor	Prof.dr.ing. C.M. Hein	
Course Coordinator	Prof.dr.ing. C.M. Hein	
Instructor	Drs. C.A. van Wijk	
Instructor	Dr.mr. E. Korthals Altes	
Instructor	Dr. H.D. van Bergeijk	
Instructor	Dr. M.T.A. van Thoor	
Instructor	Dr. R.J. Rutte	
Contact Hours / Week x/x/x/x	10 hours per quarter	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	Research writing:	
	<p>The student:</p> <ul style="list-style-type: none"> - Demonstrates a general historical understanding of the architecture profession and the role of the architect in society. - Can apply broad knowledge of the history and theory of architecture and related art forms and the humanities, as well as of the social and cultural developments relevant to architectural design. - Has developed appropriate academic writing skills. For TU Delft BSc graduates, a finished AC3 paper should have provided them with skills in planning and developing a research project, critical and responsible use of sources, and logical argumentation. These skills will be applied and expanded during this course. <p>Language skills:</p> <ul style="list-style-type: none"> - The student has appropriate English language skills. <p>If in doubt, the student should consult the OpenSourceware made available through the following links:</p> <p>https://learn.saylor.org/course/view.php?id=42</p> <p>https://learn.saylor.org/course/view.php?id=43</p> <p>These links lead to the English courses offered for free to all by the online Saylor Academy.</p> <p>Please Note: Any issues regarding research skills or language capacities will have to be addressed before the start of this course, and will require serious commitment by the student. The language courses are extensive and the student will not be able to combine them with the normal thesis workload during the semester.</p>	
Course Contents	<p>The history thesis (geschiedeniscriptie) is a required independent research project in the Master 2. It may deal with architecture, urbanism, the visual arts, design and photography, film or literature. It provides students the opportunity to hone their research skills on a historical topic. If the focus is on architecture, the research can also be of a typological kind, for example on a particular type of building, preferably not through the centuries but concentrating on a particular period or aspect. If urbanism is the subject matter, the themes may vary from the regional to the neighborhood scale, design and decision making processes, the role of politics, theories (ranging from functionalism to morphological approaches, from programmatic aspects to ideas about the creative classes and gentrification). It may also be a topographical / territorial topic, where appropriate in combination with other aspects. Finally it can regard also the investigation of an abstract topic: rhythm, scale, theory of proportions, ornamentation, eclecticism and monumentality, etc. in which an historical point of view is dominant.</p> <p>Using mixed methods from archival research and oral history to close reading of visual and textual analysis students critically examine a topic of their own choosing, producing a substantial research paper based on a clear historical perspective. This analytical and conceptual experience forms an important complement to the design&#8208;based education of the master in architecture. Writing a history thesis offers students a unique opportunity to pursue a research on a specific topic and requires students to work independently. Building on historical knowledge and research skills gained in introductory and advanced courses, students focus on primary materials and pursue an original question. They develop a complex argument and grapple with multiple data sets and interpretations. Collective and individual meetings with tutors provide a framework for the production of an original, well&#8208;written essay of about 9000 words. Students need to be familiar with library catalogues and search engines. The essays are required to demonstrate superior and consistent understanding of scientific writing (i.e. footnotes, bibliography, front and back matter). topics have to be approved by the supervisor who has to be a member of the Chair History of Architecture and Urban Planning. The topic has to be discussed with the supervisor prior to commencing. Sometimes teachers will offer a workshop.(See Blackboard).</p>	
Study Goals	<p>Learning objectives</p> <p>After completion of the course the student:</p> <ul style="list-style-type: none"> - Exhibits in depth knowledge regarding a specific field of study within architecture, urbanism, art, and or media. - Is able to plan and develop a scientific research project. - Is able to develop a critical and logical argumentation from a scientific research question based on primary sources. - Is able to evaluate, interpret and make proper reference to available sources. - Is able to build on existing knowledge and develop new knowledge. 	
Education Method	<p>Thesis supervision: 8 hours</p> <p>Independent study: 158 hours (a day in the week has been reserved for working on the thesis)</p>	
Literature and Study Materials	Blackboard	
Assessment	Thesis (For more information - length, references, use of literature and other sources - see blackboard).	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Quarter 1 and quarter 3	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR2AT030	Architecture Theory Thesis	6
Responsible Instructor	Dr.ir. H. Sohn	
Course Coordinator	Dr.ir. H. Sohn	
Instructor	Dr. S.A. Read	
Instructor	Dr.ir. A. Radman	
Instructor	Dr.ir. H. Sohn	
Instructor	Dr.ir. S. Kousoulas	
Contact Hours / Week	14 hours per quarter	
x/x/x/x		
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Required for	As per MSc2 Architecture program requirements.	
Expected prior knowledge	Students are expected to have developed a specific interest in Architecture Theory, which includes previous reading and some research in this field. Previous writing on theoretically driven topics is highly recommended.	
Summary	The Architecture Theory Thesis course offers students the possibility to explore and engage the rich conceptual and theoretical dimensions of architecture through the development of theoretical arguments and intensive research on a topic of their own choice. A free thematic allows students to conduct individual, independent research on issues and concerns that matter to them, thus offering them the opportunity of deepening their knowledge and expertise on topics which are close to their interests and passions. The focus in all cases, however, will be placed on developing the theoretical aspects of these topics.	
Course Contents	The Architecture Theory Thesis course is designed to guide participating students through the different stages of academic research and writing, aiding them in the identification of the theoretical dimensions and frameworks of their selected research topic and 'problématique', offering them relevant and timely feedback and support on their progress throughout the term. The tutors involved in this course assist students in the formulation of sound problem statements, research questions and argumentation lines towards the production of qualitative theoretical Masters' Theses.	
Study Goals	Although students are required to bring their own research passions and topics of interest to the course, we encourage students to orient these topics within two general domains or areas of specialization: 1. Architecture and political economy: Dealing primarily with research on the systemic and scalar complexities of (power) relations, forces, flows and networks, focusing primarily on their impact on -and relationship to- the (built) environment. Further angles include research on geo-politics, bio-politics and contemporary political-economy through critical and speculative investigations on the spatial, social and material transformations and consequences that these unleash across multiple scales, levels and domains. Possible themes, topics and approaches are: critical/speculative approaches to contemporary urbanisation; territorial & material flows: refuge & migration; metabolic/planetary urbanism; socio-material and spatial practices: resistance, subversion, transgression, social movements; etc. Key thinkers: David Harvey, Neil Smith, Peter Marcuse, Neil Brenner, Henri Lefebvre, Erik Swyngedouw, Andy Merrifield, Matthew Gandy, Manuel Castells, Saskia Sassen, Michel Foucault, Slavoj Zizek, Loïc Wacquant, among many others. 2. Architecture and libidinal economy: Research topics dealing primarily with issues related to matter and image, and the means and techniques of production in architecture. Mainly focused on pluralist approaches and speculative theory methodologies, and philosophical inquiries. Themes include the social effects and human affects of technological developments on the mode and means of conceiving, developing and producing cultural objects, artifacts and/or architecture. In other words, research on the material and immaterial processes and productions of things and images and their relation to experience, perception and cognition. Key words or concepts: technology, media, materialism/new-materialism, radical empiricism, speculative realism, ecological thinking, affordance, biopower/noopower, affect theory, complexity theory, geometry, space, time, memory, perception & experience of space. Key thinkers: Gilles Deleuze, Felix Guattari, James J. Gibson, Brian Massumi, Manuel DeLanda, Katherine Hayles, Henri Bergson, Martin Heidegger, Bruno Latour, Katherine Malabou, Jane Bennett, Karad Barad, Rosi Braidotti, Stanford Kwinter, among many others.	
Education Method	Upon completion of this theory course the participants will: have a solid base of knowledge on recent literature in the humanities and the social sciences and their relation to architecture practice and theorization. the appropriate knowledge of the theory of architecture and related art forms as well as of the social and cultural streams of relevance for architectural design. have developed in-depth knowledge regarding the specific field of study relating to architecture, urbanism, art, and/or media. have acquired knowledge and practice on academic research and writing skills, and will be able to apply these in theoretical argumentation and the formation of discourse. have developed a consistent and cohesive research methodology by distinguishing between a problem statement, an argumentation paper and fully developed research paper will have acquired understanding of the societal, cultural, technological and ethical dimensions and implications of conducting research on architecture	
Education Method	The Architecture Theory Thesis course is based primarily on independent self-study. It nevertheless offers students sufficient and qualitative contact-time at the early stages through the Introduction Lecture and two group meetings in which students are encouraged to introduce and discuss their topics and theoretical frameworks with their peers and tutors. The exchange of peer-reviews and feedback at this stage offers students a solid point of departure. After the group meetings in the beginning of each term, students develop their work independently. The progress is checked and discussed at regular intervals, guidance is offered through written feedback from the tutors, followed by individual consultation moments, when students can discuss their work with tutors in person. Since this course is based on a self-study format, feedback and guidance are offered on the progress made by the students, who take full ownership of their work. Tutors assist, encourage and advise students in their research and writing, and accompany them throughout the development of their Theses within one semester. Preparatory Phase: Self-study	

Formulation of Abstract

Introductory Phase:

Contact-time

Introduction Lecture: course introduction

Group meetings (2): tutor-led seminar-type discussions and peer-reviews

Problem Statement & Research Questions

Preliminary Reading List

Research-Writing Phase:

Self-study periods

First & Second Drafts

Feedback & Consultations

Final Thesis

For more information please contact the course coordinator.

Course Relations

This course is a required choice-course for MSc1/2 curriculum that awards 6 ECTS upon successful completion.

Accreditation is required for P2 registration, hence we urge students to complete this course prior to MSc3 enrolment!

This course is highly compatible with the Architecture Theory Design Studio Agential Materialisms (AR2AT020) offered only in Spring terms Q4. Students wishing to follow both courses in one term are asked to enrol in the assigned period Q1/3 and Q4.

For questions please contact the course coordinator.

Literature and Study Materials

Part of the objectives of this course is for students to learn how to build a detailed and relevant reading list and research bibliography based on their individual thesis topic. Hence, students will largely define their consulted first and secondary sources.

Tutors will recommend relevant readings and sources during the feedback phases of the course, and upon request by students.

Prerequisites

As per MSc2 Architecture program requirements.

Assessment

This course will be assessed via a series of deliverable assignments:

Problem Statement

First and Second Progress Drafts

Final Thesis

For evaluation criteria and rubrics please consult the course information on Brightspace or contact the course coordinator.

Enrolment / Application

This course has limited enrolment and special requirements!

All interested students are requested to submit a tentative thematic research proposal (motivational abstract) to the Architecture Theory chair in order to determine the theoretical viability of the proposal in advance.

Research proposals should be uploaded on Brightspace and sent via email to the AT chair office, by the announced deadline. Students will receive an email after registration to the course. The abstract deadline will always be prior to the beginning of the course.

A concept form for the tentative thematic research proposal and further information are available upon request.

Send us an email to: AT-MS-C-BK@tudelft.nl

Note: The submission of a proposal does not guarantee acceptance into this course. Proposals that are not theoretical or that lean on clearly historical methods, will not be selected, and the students will be informed prior to the beginning of the course.

Note: Due to the seminar structure of this course students must be able to attend the introductory information lecture, and the group meetings held in the first quarter of the semester.

Students with course scheduling conflicts should not sign up for this course.

This course is not open for students following a study abroad semester.

Special Information

The maximum marking period is 10 working days from the final deadline. Marks will be registered in advance of the following academic term.

This course is equivalent to the History Scriptie. It is mandatory and awards 6 ECTS upon completion.

This course has limited enrolment, and is open to students who submit a tentative thematic research proposal with clear theoretical scope.

This course requires attendance to lectures, group meetings and consultations. Thus, students with schedule conflicts or study abroad plans are not eligible for this course.

Period of Education

Full semesters (Q1-2 & Q3-4)

Minimum aantal deelnemers 30

Maximum aantal deelnemers 75

Year
Organization
Education

2018/2019
Architecture
Master Architecture, Urbanism & Building Sciences

21 ECTS Electives

Introduction 1

The Master 2 program of Architecture consists of a total of 30 credits, of which 21 credits compulsory and 9 credits free elective.

Compulsory (total of 21 credits):

- History Thesis (AR2A010) or the Theory Thesis (AR2DSD820) of 6 credits
- The Delft Lectures on Architectural Sustainability of 3 credits
- An approved Master 2 Architecture design project (12 credits) (see list in studyguide)

Elective (total of 9 credits):

- free electives as to be found in the studyguide

There are 3 possibilities for doing the Architecture Master 2 design project:

- 1 - the Master 2 Architecture design project can be an Architecture Master 1 design project (that you have not followed yet), that you attend as an Master 2 design project (12 credits)
- 2 - a design project (12 credits) from the 'MSc 2 design project list', either a semester project or a quarter project (quarter 2 or quarter 4)
- 3 - it is also possible to participate in an (international) program of another university. For this please contact 'International Office' and Students Affairs (O&S)

The courses in this section are agreed on by the faculty Director of Education and the Master coordinator of Architecture as Architecture design projects suitable for Master 2.

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

MSc 2 Design Projects

AR0026	MEGA	12
Responsible Instructor	Dr. M. Turrin	
Responsible Instructor	Prof.ir. R. Nijssse	
Course Coordinator	Dr. M. Turrin	
Contact Hours / Week	93 hours per quarter	
x/x/x/x		
Education Period	4	
Start Education	4	
Exam Period	none	
Course Language	English	
Expected prior knowledge	Each student is expected to have knowledge about the disciplines to perform in the course. The level of the knowledge should be at least BSc.	
Summary	MEGA is a collaborative integral multi-disciplinary design of a special big and/or tall building. This could be a multifunctional skyscraper or a multifunctional building with a large span, such as a stadium, a sports facility, a museum, an airport, train station or transport hub.	
	The course targets master students in Architecture, Real Estate & Housing, Building Technology and Civil Engineering; and it is open to non-TU Delft students, conforming with TU Delft regulations. It can be chosen by Building Technology students in MSc2 (choice between EXTREME AR2AE010 and MEGA AR0026).	
	Students work in teams. The design team of 4 to 7 students is responsible for delivering an integrated design as a multidisciplinary team; while each student is responsible for one discipline.	
	Disciplines involved are: architecture, structural design, climate design, façade design, design/construction management and computational design/BIM. Sustainability runs transversally across these disciplines.	
	The design process occurs in a collaborative digital design environment, supporting the workflow across the different disciplines. The collaborative digital design requires an integrated 3D approach with BIM (Building Information Modelling), performance analysis, and file to production processes.	
	The workshop is very realistic and closely matches the design process of large international projects in the competition phase; it is a very good preparation and experience builder for your future career. It is highly appreciated by future employers.	
	The course is supported by external international design/engineering offices. With them, the location of the project will be chosen and the brief of the design assignment will be developed. As examples from recent years, support was given by Arup and UNStudio, by ABT and Neutelings Riedijk Architecten. Examples of past collaborations include also Municipalities and Provinces, such as the City of Rotterdam, Almere and Den Haag, and the Province of Friesland.	
Course Contents	Disciplines:	
	The team is organized on disciplines: -Architectural Design -Structural Design -Climate Design and building services -Façade Design -Project and construction management -Computational Design	
	The disciplines are divided amongst the team members; each member is responsible for the contribution and integration of these aspects in the collective design. Students are encouraged to match their role in the team with the specialization they follow in the Master track.	
	Phases:	
	The course is structured in 3 phases: -Lectures; excursion; intensive learning -Sketch design of 2-3 options; presentation of options; choice of one option -Preliminary design of the chosen option; final presentation	
	The first phase includes lectures by professors, external experts and architectural/engineering firms. During the excursion, the project site is visited. Intensive sessions allow studying and practicing group dynamics, collaborative work, computational design.	
	The second phase focuses on the design of multiple options. The daily design activities are facilitated by tutors who are expert in the disciplines. Each discipline has a weekly time for individual consults. During a presentation, one design option is chosen for further development.	
	The mid-term presentation is facilitated by external experts. Feedback by them and tutors inform the design and decision-making. Following, the external experts give a (public) lecture.	
	After the mid-term presentation, the design option is detailed with the team, leading to the end presentation. The end presentation is an important event with external experts assessing the designs. The design is summarised in reports about each discipline.	
	Site:	
	The assignment has an actual site where the building is planned. Past examples are in Amsterdam, Rotterdam, London, Brussels, Guangzhou.	
	Objectives:	
	Collaborative design -Working together with different disciplines (different goals and backgrounds) -Realistic design environment	
	Sustainable design -Definition of sustainability for project -Contribution of all disciplines to holistic sustainable design -Development of low/zero/plus energy design	
	Computational Design -Collaborative digital workflow across disciplines / BIM	

- Parametric design strategies/methods
- Performance analysis with simulation tools
- Feedback loops between numeric assessments and geometric modelling
- Digital interaction between design, engineering, analysis, manufacturing and construction

Architectural Design

- Interaction architecture/masterplan/environmental context
- Development of architectural design concepts
- Integration of structural, façade, climate concepts into architectural design
- Integration of sustainability and construction into architectural design
- Development of preliminary design

Structural Design

- Development of structural concepts
- Development of concept design
- Evaluation of different structural systems in relation to architectural design
- Integration with architecture, façade, climate design
- Dimensioning of structural elements
- Development of preliminary design

Climate design

- Developments of climate and building services concept
- Development of conceptual design
- Evaluation of different climate and building services systems in relation to architectural design
- Integration with architecture, structure, façade
- Dimensioning of HVAC installations
- Development of preliminary design

Façade design

- Development of façade concepts
- Developments of conceptual design
- Evaluation of different façade systems in relation to architectural and climate design
- Integration with architecture, structure, building services

Project and construction management

- Control of objectives, tasks, deliverables
- Facilitation of the group process
- Prediction of income and building costs; optimisation
- Development of site management and logistics
- Development of construction methods/planning

Study Goals

The student is able to design a coherent, significant, elaborated, correct and innovative design - on mainline and on aspects on MSC 2 level.

Specified for this course:

After successful completion of the course, the student will be able to:

- work in an interdisciplinary design process;
- understand and apply discipline-related knowledge in projects for big or tall buildings.
- develop design strategies to achieve high building performances;
- integrate numeric analysis and simulations to address design choices.

Education Method

In this course, the education methods are:

- Lectures by professors and specialists
- Collaborative working sessions with other students
- Exposure to external architectural practice and external experts
- Consults with tutors
- Making presentation and receiving/integrating feedback

Special is the involvement of external practitioners and external experts linking this course to practice.

For this course several multidisciplinary teams of students are formed, which are each responsible for one integral design. Each student has a different role in the design team and is tutored by instructors specialized in her/his discipline. When possible, students take roles according to their specialization during the Master studies.

Apart from focussing on his/her own discipline, the aim for each team-member is to achieve the best integral design paying special attention to collaborative design, sustainable design and computational design.

Feedback is received during the mid-term and final presentation from the external experts and tutors.

Literature and Study Materials

More specific literature is provided at the start of the course. The literature below provides an indication on relevant general content.

Tall Buildings

Kloft, E., Eisele, J., (Ed), (2003) High-Rise Manual, Hardcover
Ng, E. (Ed.). (2010) Designing high-density cities for social and environmental sustainability. London, Earthscan.
Ali MM, Moon K. (2007) Structural developments in tall buildings: currents trends and future prospects. Architectural Science Review 50(3): 205223.
Baker WF, Korista DS, Novak LC. (2008) Engineering the worlds tallest Burj Dubai., In The CTBUH 8th World Congress Tall & Green: Typology for a Sustainable Urban Future, Dubai; 110.
Brown, N. C., & Mueller, C. T. (2016) Design for structural and energy performance of long span buildings using geometric multi-objective optimization. Energy and Buildings, 127, 748-761. Cross,P., Vesey,D., Chan, C.M., (2007) High-Rise Buildings. In Melchers, R.E., Hough, R., (Ed), Modeling complex engineering structures, ASCE.
Stylianios, D., Charitou, R., Hesselgren, L., (2006) Computational Methods on Tall Buildings - The Bishopsgate Tower, Communicating Space(s) In proceedings of eCAADe 2006, 778-785.
Almusharaf, Ayman M.; Mahjoub Elnimeiri (2010) A Performance-Based Design Approach for Early Tall Building Form Development , CAAD - Cities Sustainability, Proceedings of ASCAAD 2010, 39-50.
Kimpian, J., Mason, J., Coenders, J., Jestico, D., Watts, S., (2009) Sustainably Tall: Investment, Energy, Life Cycle., In proceedings of ACADIA 2009: reForm() - Building a Better Tomorrow, 130-143.
The Structural Design of Tall and Special Buildings, International Journal, John Wiley & Sons, Ltd
Moon K, (2008) Sustainable structural engineering strategies for tall buildings. In: The Structural Design of Tall and Special Buildings, Special Issue: CTBUH 2nd Annual Special Edition: Tall Sustainability 17(5): 895914.
Taranath, BS, (2011) Structural Analysis and Design of Tall Buildings: Steel and Composite Construction. Taylor & Francis.
Taranath, BS, (1988) Structural Analysis and Design of Tall Buildings. McGraw-Hill, New York.
Schueller, W., (1986) High-Rise Building Structures (2nd edn.) Robert E. Krieger Publication Company, USA.

Big buildings

Barnes, M., Dickson, M., (Ed.), Widespan Roof Structures, Thomas Telford, London, 2000

Hough, R., Carfrae, T., *Lightweight Long-Span Roofs*. In Melchers, R.E., Hough, R., (Ed), *Modeling complex engineering structures*, ASCE Publications, 2007

Imbert F., KathrynStutts Frost, Al Fisher, Andrew Witt, Vincent Tourre, and Benjamin Koren, (2012), *Concurrent geometric, structural and environmental design: Louvre abu dhabi*. In *Advances in Architectural Geometry*, 7790.

Kawaguchi, M., (1991) *Design problems of long span spatial structures*. *Eng. Struct.* 13, 144163.

Majowiecki, M., (2005) *Structural architecture for large roofs: concepts and realizations*. *Bautechnik*, 82(3): 147156.

Majowiecki, M. (1990) *Observations on theoretical and experimental investigations on lightweight wide span coverings*, International Association for Wind Engineering, ANIV.

Hladik, Pavel; Clive J Lewis (2010) *Singapore National Stadium Roof*, *International Journal of Architectural Computing* 8(3): 257-278

Shepherd, P., & Hudson, R. (2007) *Parametric definition of Landowne road stadium*. in: *International association of shell and spatial structures*, Venice, Italy, 2007,CD-ROM.

Hudson, R. (2008) *Frameworks for practical parametric design in architecture*. In: Pottman, H., Hofer, M. & Kilian,A. (eds), *Advances in architectural geometry*. Vienna, Austria,17-20.

Sanchez-Alvarez J, (2005) *Materializing geometry: the free-form reticulated roof structures for the new Milan Fair*. In: *Proceedings of AEC2005 Symposium*, Rotterdam, NL.

Assessment

Presentations and Reports

Assessment is twofold:

- Group assessment for integral group design based on presentations
- Individual assessment for discipline report

The students mark is a combination of the group assessment and individual assessment.

Special Information

The maximum marking period is 15 work days.

Remarks

The course is in English - spoken and written.

Period of Education

Quarter

AR0037	Studio Making	12
Responsible Instructor	Ir. H.A. van Bennekom	
Responsible Instructor	Ir. S.T. Bakker	
Course Coordinator	Ir. H.A. van Bennekom	
Education Period	3 4	
Start Education	3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	completed MSc1	
Course Contents	<p>"Studio Making" is a design studio that offers realistic design challenges, with real external partners, embedded in a series of interesting lectures and site visits. The topics and assignments will be mainly focussed on designing new ideas (based on solid research on the local needs and context) to increase and support circular processes in which demolition waste becomes an ingredient in new concrete. By doing this, the new results will therefor probably posses exiting, unexpected, new qualities and possibilities.</p>	
Course Contents Continuation	<p>TU Delft/Complex Projects is participating in an international project team of researchers, designers and builders that are seeking new applications with re-used raw materials (demolished concrete, brick and tiles). The TU Delft/Complex Projects is especially asked to participate in this international project because of its educational, research and student design qualities. "Studio Making" will be dedicated to designing new applications with recycled concrete and other raw materials, for real projects through western Europe. The sites will be visited during the course, and our designs will be discussed and evaluated with local parties and stakeholders in order to be realized.</p>	
Study Goals	<p>The Design "Studio Making" builds on the successful approach and contents of the 3ects course 'Making', in which students explore new design possibilities through hands-on experimenting and modeling with concrete, supported by lectures, site visits and design consulting.</p>	
Course Contents Continuation	<p>About 50% of primary raw materials in the EU are used in the building sector. At the same time, this building sector is also responsible for about 35% of all wastes. Within the construction and demolition wastes, components like concrete, bricks, tiles and ceramics have very high potential to be applied as recycled aggregates and sands in new types of concrete etc. However, until now, recycled materials are mostly down-cycled to be used as filling materials in infrastructure projects. Although the recycling quota in North-West Europe is more than 70%, but less than 4% is re-used for the original purpose: concrete production. To support recycles and further development of sustainable improvements, this studio will design new applications of concrete in which recycled aggregates define new qualities and possibilities</p>	
Study Goals	<p>the student:</p> <ul style="list-style-type: none"> - Has developed further skills in architectural design satisfying both aesthetic and technical / functional requirements. - During this trajectory skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology, social and human sciences. - Additionally, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and societys needs, including environmental and waste aspects. - During Master 1, 2, 3 & 4 skills are acquired by cumulation to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing. - skills are acquired to incorporate an understanding of the design process with regard to structural design, materialisation of buildings, comfort and climate control. 	
Education Method	design, tests, presentations, site visit, visiting critics	
Assessment	design and research book	
Special Information	The maximum marking period is 10 work days.	
Elective	Yes	
Tags	Challenging Design Drawing Energy & Industry Projects Prototyping Sustainability	
Period of Education	week 3.8 kick off, week 4.1-4.11 studio	
Leerstoel	CP	
Minimum aantal deelnemers	2	
Maximum aantal deelnemers	24	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR0052	Design Studio: Architecture and Urbanism Beyond Oil	12
Responsible Instructor	Prof.dr.ing. C.M. Hein	
Course Coordinator	Ir. H.A. van Bennekom	
Contact Hours / Week x/x/x/x	0/X/0/X	
Education Period	2 4	
Start Education	2 4	
Exam Period	none	
Course Language	English	
Expected prior knowledge	completed MSc1	
Course Contents	<p>An end to our petroleum-based lifestyles and the use of renewable energies will impact our cities and buildings. The Studio Architecture and Urbanism Beyond Oil argues that we have to first understand the enormous collective presence of oil in the built environment, its impact on production processes, financial flows, and associated social and cultural patterns in our everyday environment, and the long history of oils impact on our lives. Then, we can imagine the needs and spaces of the future and transform our existing landscapes, cities and buildings. The Architecture and Urbanism Beyond Oil studio starts with an investigation of how petroleum its extraction, refining, transformation, and consumption has shaped our built environment in visible and invisible ways around the world over the last 150 years. Some students have built on their history thesis exploring oil depictions in Hollywood films or evolving mental maps of oil as a foundation or design. Others have explored the historical development of sustainable architecture through the elective "Building Green." The studio identifies global landscapes of energy and oil. It maps and translates the findings into accessible visuals, with the goal to develop an architectural, urban or landscape project that address these findings and propose new uses and solutions. The studio has included analysis of the relevance of oil for the urban and architectural form of the port and city of Rotterdam. Students have imagined possible transition trajectories, notably suggesting a recuperation of the oil-dedicated spaces from the sea-side and new connections across the river. Other students have imagined the transformation of gas stations as lifestyle hubs, roads as energy generators, or floating self-sustaining cities. Design strategies developed in the studio can be applied to cities around the globe and possible research destinations including Rotterdam, Dunkerque, Philadelphia, Houston, and Curacao.</p>	
Study Goals	<p>Architectural and urban design are anchored in larger political, economic, social and cultural contexts. Students will learn how to place their design into the global context of oil as a commodity, the generator of financial flows, and as a mindset. They will do primary research on Rotterdam as a case study. They will work in groups on a chosen location and develop a project that acknowledges the larger theoretical and methodological premises of the course and that takes into account the different disciplinary backgrounds of the participating students.</p>	
	<p>The course is open to students in architecture, urbanism, real estate, heritage, architectural history, history and media studies, etc. and mirrors in its composition the nature of design practice.</p>	
Education Method	Lectures, discussions, and studio design work.	
Assessment	Grades will be based on course participation, assignments and the final project.	
Special Information	The maximum marking period is 10 work days.	
	Open for students from all Dutch institutions. External students please check: http://tinyurl.com/qam99u4	
Period of Education	Quarter	
Minimum aantal deelnemers	4	
Maximum aantal deelnemers	24	

AR0067	Architecture & Urban Design	12
Responsible Instructor	Dr.ir. M.G.A.D. Hartevelde	
Responsible Instructor	Dr.ir. R. Cavallo	
Course Coordinator	Dr.ir. M.G.A.D. Hartevelde	
Contact Hours / Week x/x/x/x	8 hours per week	
Education Period	4	
Start Education	4	
Exam Period	none	
Course Language	English	
Expected prior knowledge	Skills are acquired to incorporate an understanding of the design (process) attained with regard to architectural/urban history, theory, art and technology as well as relevant general knowledge of human sciences. Additionally, skills are acquired to incorporate an understanding of the design (process) attained with regard to the relation between buildings, public spaces and society's needs, including environmental aspects. During the trajectory of the Master 1, 2, 3 & 4 studios, the complexity of the architectural and urban design increases leading to a level fit for architectural/urban practice.	
Course Contents	<p>Interventions in the contemporary city need constantly to be grounded on sharp design approaches in order to respond adequately to the necessities of our times.</p> <p>Nowadays we meet in public atria and do shopping in malls; we move along covered walkways and go from street to street by taking shortcuts through the buildings of a city block. All kinds of buildings hybridised and became multi-functional anchors in the city serving thousands of people daily. The railway stations of today are entangled with the urban tissue, airports have become cities, conference centres and world expos temporarily change the urban composition, and museums are also leisure centres. In the recent decades, the amount and the proportion of public space within urban buildings has steadily increased, with much of it forming part of a larger interior and exterior pedestrian network. On the other hand the amount and size of public buildings within the urban context increased too, changing the way the contemporary city is constructed. However, still rarely designers approach the city as architecture or the building as urban design.</p> <p>For these reasons there is nowadays a great need of identifying the available design tools in order to plan effective future interventions in our cities. Particularly in the case of existing urban environments, design approaches require a conscious understanding of urban design as well as an adequate knowledge of changes in building typologies.</p> <p>In this design studio, architects and urban designers work together in the examination of the urban space as architectural space and the architectural space as urban space. In this experimental design project, students and staff are interested on one hand to the urban intervention in the built environment and its effect on architecture, and at the other hand to the architectural treatment of the city and its effect on urbanism.</p>	
Study Goals	<p>The student:</p> <ul style="list-style-type: none"> - understands the interrelation of architectural and urban design, to evaluate and create proposals for strategic interventions, with regard to spatial-social patterns and the culture of the city - evaluates skills in architectural and urban design to create an elaborate design proposal in typological terms related to use, ownership and meaning - creates an elaborate design proposal on the edge/overlap of both professions, satisfying formal, technical and functional requirements, including materialisation. 	
Education Method	Interactive studio work	
Assessment	Design / Research, presented in drawing form with written commentary and a model.	
Special Information	<p>The maximum marking period is 10 work days.</p> <p>The studio work includes an excursion to the site. Please, do not hesitate to inform with the course coordinators what this year's case studies is.</p>	
Period of Education	Quarter 4	

AR0072	Solar Decathlon	12
Responsible Instructor	Prof.dr.ir. A.A.J.F. van den Dobbelssteen	
Course Coordinator	Ir. P.G. Teeuw	
Contact Hours / Week x/x/x/x	8 hours per week	
Exam Period	none	
Course Language	English	
Course Contents	<p>The Solar Decathlon is a bi-annual competition of solar homes built by universities across the world. TU Delft is also participating in this competition.</p> <p>This course is connected to active involvement of students participating in the TU Delft Solar Decathlon team. This course deals with the architectural and technical design and elaboration of the TU Delft entry to the Solar Decathlon competition.</p>	
Study Goals	<p>The student is able to design a coherent, significant, elaborated, correct and innovative design - on mainline and on aspects on MSC 2 level.</p> <p>Specified for this course; the student is able to:</p> <ul style="list-style-type: none"> - collaborate in a team with other students - work on a joint design of an energy-neutral or energy-producing house - integrate various aspects of sustainability into the design of the house - elaborate on components of the design challenge, related to architectural design, structural design and engineering, envelope design and engineering, climate design and engineering, HVAC systems, electrical systems etc. 	
Education Method	Tutorials, workshops, (mid-term) presentations, reporting, exhibiting	
Assessment	The design, report and oral presentations will be assessed by different criteria. Also the group attitude and pro-activity of the student will be reviewed.	
Period of Education	Semester	

AR0076	The New Town: Design Studio Africa		12
Responsible Instructor	M.J. Emmerik		
Responsible Instructor	Prof.dr. W.A.J. Vanstiphout		
Course Coordinator	M.J. Emmerik		
Instructor	Prof.dr. W.A.J. Vanstiphout		
Instructor	M.J. Emmerik		
Education Period	4		
Start Education	4		
Exam Period	none		
Course Language	English		
Summary	<p>This Research and Design studio is focused on one of the fastest urbanizing regions in the world: the African west coast between Cote d'Ivoire and Nigeria where more than a dozen agglomerations with millions of inhabitants are stretched over an area of approximately 500 miles. This creates an urban area with a potential coherence and accumulative value comparable to regions such as the East Coast of the United States or the Pearl River Delta in China.</p>		
	<p>The African 500 mile city however, in contrast to its American and Chinese stretches across five countries, with different political systems, economies working at different speeds and complex relationships with each other. On an urban level, they are connected by a dynamic of urbanization due to immigration and economic growth which brings huge pressures on the livability and ecological sustainability of the area. Conversely, the urbanization process itself is hugely pressurized by the effects of climate change, making linear city between Accra and Lagos one of the areas most at risk both from the rising of the sea level, and the swelling of rivers such as the Volta and the Niger.</p>		
	<p>But there is more holding this region together. This part of West Africa has a very old, precolonial, precolonial history of urban civilization and states, with great examples in the Dahomey and Benin kingdoms. This shared history was however hacked into pieces during colonial times, that also brought with them a series of trading posts later developing into the metropolises of today. There is, in other words a large historical heritage to be found on the ground as a cultural backbone to the 500 Mile City.</p>		
	<p>In this research and design studio students develop Urban and Architectural design projects based on extensive fieldwork in West Africa, exploring this area through the perspective of modern new town planning and try to conceptualize and explain these conurbation as part of the present global urbanization. How can we understand these large urban areas as a physical manifestation of its various backgrounds? How can we use the design models used by architects and urban planners for new town planning in the past to deal with this rapid urban growth? What are the contemporary planning issues of the new cities of the 21st century? Can the developed and developing nations learn from each other in the planning and development of new towns? And what effects does this have on the daily lives and the economies of the regions involved?</p>		
	<p>This course, in combination with The New Town: Lecture series (AR0023) is open for students from the master tracks in Architecture (MSc2) and Urbanism (Q4 elective). It is organized by the chair of Design as Politics in collaboration with the International New Towns Institute.</p>		
Course Contents	<p>In this research and design studio you will develop Urban and Architectural design projects based on extensive fieldwork in West Africa. We will concentrate on a massive transnational conurbation that is forming between Abidjan (Ivory Coast) and Lagos (Nigeria). We will explore this area through the perspective of modern new town planning and try to conceptualize and explain these conurbation as part of the present global urbanization.</p>		
	<p>The aim of the studio is to understand the development of this unplanned megacity, its effects on the daily life and local economies, and to explore the role that design and new town planning might play on many different scales in this urban situation where there is no strong role for a central state.</p>		
Study Goals	<p>After successful completion of this course you are able to:</p>		
	<p>Analyze the physical manifestation of rapidly urbanizing areas in relation to the social-economic and political context in which they emerge and to transform your findings into a design brief.</p>		
	<p>Develop strategic architectural or urban interventions that guide or facilitate rapid urban growth.</p>		
	<p>Reflect on western planning principles and their application to the African context and visa versa.</p>		
Education Method	<p>Design tutoring / Studio sessions / Presentations / Field research</p>		
	<p>One meeting each week, consisting of design tutoring and collective pin-up sessions combined with extensive field research.</p>		
Course Relations	<p>This studio is complemented by a theoretical introduction to New Town planning (AR0033). Enrollment to this lecture series is compulsory for students participating in this studio.</p>		
Assessment	<p>Assessment takes place based on a design project, your attendance and participation during the field research and a final presentation. More information will follow at the beginning of the course.</p>		
Remarks	<p>This studio is organized by the chair of Design as Politics in collaboration with the International New Town Institute, and a number of international global parties such as the Dutch ministry for foreign affairs, UN Habitat and local universities and development agencies. For more information see: www.designaspolitics.nl and www.newtowninstitute.org</p>		
	<p>Participating students are required to cover additional traveling expenses for a field trip to Africa (around 1300,- for travel and accommodation.)</p>		
Period of Education	<p>This course starts in the second semester (spring 2018)</p>		

AR0077	The Why Factory MSc2 Design Studio	12
Responsible Instructor	Prof.ir. W.G.M. Maas	
Course Coordinator	J. Arpa Fernandez	
Responsible for assignments	S. Gargaretas	
Contact Hours / Week x/x/x/x	0/0/0/X	
Education Period	4	
Start Education	4	
Exam Period	none	
Course Language	English	
Course Contents	<p>This course is a MSc2 studio, and is organized as a think tank. Studios at The Why Factory are content-driven design and research studios with a practical and theoretical scope. MSc2 studios are research labs and platforms that aim to analyse, theorize and construct future cities. They conduct a variety of investigations within the given world, and produce future scenarios beyond it: from universal to specific and global to local.</p> <p>MSc2 studios start with a specific brief and a statement on the future of urban life. Based on the brief, future scenarios will be developed leading to visionary, city-related designs.</p> <p>Students develop their specific approach to the brief and define the necessary scientific research. Calculations, simulations or modelling to support the studio work are elaborated in a parallel seminar: the MSc2 Future Models I seminar.</p> <p>The results of the research lead to a design project with consequent logic, convincing argumentation and illustrative and fantastic visuals.</p>	
Study Goals	<p>Upon completion of the Master 1, 2, 3 & 4 studio trajectory, the student:</p> <ul style="list-style-type: none"> - Has developed the necessary skills in architectural design that satisfy programmatic, aesthetic and technical requirements. - During the Masters trajectory, the complexity of the architectural design increases, leading to the level required for professional practice. - During this period, skills are acquired to increasingly incorporate an understanding of design processes, architectural history and theory, art, technology and human sciences. - Additionally, skills are acquired to incorporate into design an understanding of the relation between territory, buildings, spaces and societies needs, including environmental aspects. - During Master 1, 2, 3 & 4, skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing. - Together with the building technology training, during Master 1, 2, 3 & 4 skills are acquired to incorporate an understanding of the design process with regard to structural design, materialisation of buildings, comfort and climate control. 	
Education Method	<p>Atelier: 150 hours Self study: 270 hours</p>	
Assessment	Presentation	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Quarter	
Maximum aantal deelnemers	30	

AR0086	Infrastructure and Environment Design	12
Responsible Instructor	Dr. F.L. Hooimeijer	
Responsible Instructor	Dr.ir. T. Kuzniecowa Bacchin	
Course Coordinator	Dr. F.L. Hooimeijer	
Instructor	Dr.ir. T. Kuzniecowa Bacchin	
Instructor	Dr. F.L. Hooimeijer	
Contact Hours / Week x/x/x/x	0/0/0/X	
Education Period	4	
Start Education	4	
Exam Period	none	
Course Language	English	
Course Contents	<p>With urgent urban challenges such as climate adaptation, energy transition, and continued urbanisation, the urgency of integrating planning and design with urban engineering increases. The implementation of new technological interventions and the utilisation of the natural system is hampered by the lack of an integrated approach incorporating urban planning and design decisions. Meanwhile, urban and economic growth increasingly competes for infrastructure and environment, affecting the success or failure of the daily operating systems of cities and thereby urban competitiveness. The challenge is to fundamentally re-think the urban landscape in light of new technologies. The question is how to renew existing cities by integrating the parameters of the natural system, as well as technological innovations directly into urban development opportunities arising from spatial planning and design.</p> <p>In order to stimulate and design the synergy between design and engineering this course offers the possibility for architects, urban designers and landscape architects to get well acquainted with the concepts and language of civil engineers on the subject of infrastructure and environment; at the same time the civil engineers will get acquainted with the world and language of designers.</p>	
Study Goals	<p>In order to create an emerging path where synergy between the disciplines makes sure that technology becomes embedded in the design process, this course offers possibilities for both urban designers and civil engineers to get well acquainted with each others discipline. This is achieved by collaborating with the course Technology and Practice Water Management in Urban Areas at (CT5510) that elaborates on the technology of building site preparation and will show the collaborative worlds of soil and water.</p> <p>The goal of this course is that students will be able to:</p> <ul style="list-style-type: none"> Formulate their design perspective that is based in a conceptual or theoretical framework. Identify and discuss the synergy between natural conditions and technological potential and possibilities in urban environments. Analyse and design infrastructures on a regional scale and on the scale of the section. Identify and discuss the tension between public and private development in infrastructures and environments. Apply methods concerning the appraisal of sustainable urban environments and infrastructure. Demonstrate in a design the connection between the natural system and technical possibilities in urban environments. Be able to translate analyses into design and the design into a formal plan. Perform inter-disciplinary working. 	
Education Method	<p>Readings in the field of knowledge brokerage, technical entrepreneurs, landscape ecology, sustainability and urban theory for a better understanding and theoretical framing of the individual project.</p> <p>Exercises in building a theoretical or conceptual framework and translating analyses into design.</p> <p>Interdisciplinary learning by taking class with civil engineers and policy students in which understanding can be created for each others knowledge and skills, where fences between the knowledge fields can be broken down, where contacts can be made for later in professional careers. The Urban Water Management course starts in Q3 with 8 lectures of which the compulsory ones are indicated in the schedule, the others can be viewed on colleggerama. In Q 4 there is an assignment, excursion and workshop with the urban water management students.</p> <p>Workshops with professionals and with students of technical background to understand differences in language and concepts and learn to apply the technical information to the spatial context.</p> <p>Individual or group project as elaboration of the workshops.</p> <p>Project in practice: research assignment with a partner in practice to answer to the goals of this course. It needs to be with a company or institute, municipal department with a technical focus. With them you need to arrange that you work on a certain research or design project that can be done in 10 weeks, minus the time you need for the other activities in this course and your other electives. You can also take the summer months to extend the internship. The result is a report where, taking in consideration the learning goals for this course, a reflection is done on the project and/or way of working.</p>	
Literature and Study Materials	<p>Literature list is given with the course outline. It covers theory on sustainability, knowledge brokerage, eco system services, urban ecology, infrastructure and urban design.</p>	
Assessment	<p>The course results in an individual project or a project in practice. The content of individual project is:</p> <ol style="list-style-type: none"> 1) Use of theory to frame your research and design perspective. 2) Research and analyses of technical data/infrastructure of your site resulting in an environmental and infrastructure potential map. 3) Research and analyses of the surface of your site, resulting in a surface potential map. 4) Synthesis between 2 and 3 and together with 1 resulting in a (spatial) concept. 5) Concept translated in a performance based urban design that will be translated into a formal plan. 	
Remarks	<p>This course is combined with: Technology and practice Water management in urban areas CT5510 4ects</p> <p>Summary: master course on design and planning of the urban water management system. Water fluxes and relevant processes in water and soil. Storm water, surface water and groundwater drainage design (quantity and quality) in interrelation with subsidence and based on functional demands and standards. Storm water infiltration and building site preparation. Water wise spatial planning and urbanism. Water management policy development.</p> <p>Responsible Professor: Nick van der Giesen Course Coordinator: Frans van der Ven</p> <p>This course includes the course AR0093 Infrastructure and Environment Method Module. It is not possible to take both this course and AR0093.</p>	
Period of Education	Quarter	

AR0094	Bucky Lab A	12
Responsible Instructor	Dr.ing. M. Bilow	
Course Coordinator	Dr.ing. M. Bilow	
Education Period	3 4	
Start Education	3	
Exam Period	none	
Course Language	English	
Course Contents	<p>The focus of the semester is an innovative building construction or facade design for an architectural related building, this may be a part of a building, a pavillion or a facade. The task is a building component in which all the important technical and architectural aspects of a building are integrated in. The first three weeks students individually research and analyse the assignment in order to come up with an innovative concept. The remaining weeks of the semester are dedicated to a design by research process in which all the main aspects of the design, from applied mechanics, material propertie to production techniques are researched ending in an integrated final design. Computer modeling, virtual and full scale material prototyping are part of the process.</p> <p>This course is a shorter version of the already known bucky lab, so expect the same fun but in a smaller package ! We try to focus more on the construction and will reduce the building physics and structural engineering part.</p>	
Study Goals	<p>The student is able to design a coherent, significant, elaborated, correct and innovative design - on mainline and on aspects on MSC 2 level.</p> <p>Specified for this course: the student</p> <ul style="list-style-type: none"> - has an understanding of the relation between design, society, realisation, materialisation and functioning. - is able to design and evaluate building components based on their function and performance. 	
Education Method	Design consultation and computer modeling. Design by prototyping	
Assessment	Individual report of innovative concept and reports in team of two students of design by research process from concept to final design, main focus the level of integration of all the researched aspects.	
Special Information	The maximum marking period is 10 work days.	
Period of Education	summer semester starting in week 6	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR0096	EXTREME technology	12
Responsible Instructor	Prof.dr.ing. U. Knaack	
Course Coordinator	Ir. R. Schroën	
Contact Hours / Week	12 hours per week x/x/x/x	
Education Period	4	
Start Education	4	
Exam Period	none	
Course Language	English	
Course Contents	<p>The project is about building in a extreme situation, in respect to climate, location and function. Essence is the interaction between the extreme circumstances, the technical solutions, and the architecture. Extreme circumstances do request technical solutions which will be the starting point for the design development. The designer has to direct the 'engineer questions and answers', towards the articulation of the form which is based on integration of aesthetic and technology.</p> <p>"Die Architectur des 21 Jahrhunderts hat ihre Unschuld verloren, Gebaude müssen etwas leisten" Stefan Behnisch.</p> <p>In the end the student is able to understand technical solutions, to reflect on them, to applicate them and to transform them. And the student is able to design a coherent design result.</p>	
Study Goals	<p>The student is able to design a coherent, significant, elaborated, correct and innovative design - on mainline and on aspects on MSC 2 level.</p> <p>Specified for this course:</p> <p>In the end the student is able to design a healthy coherent building in extreme conditions with a focus on technical solutions: the student is able to apply, reflect and transform principles concerning climate, construction and structure.</p>	
Education Method	Design project	
Assessment	The design result including the aspects structure, climate and envelope.	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR0098	Sustainability project design and elaboration	12
Responsible Instructor	Prof.ir. M.F. Asselbergs	
Responsible Instructor	Prof.dr.ir. A.A.J.F. van den Dobbelsteen	
Course Coordinator	Ir. P.G. Teeuw	
Course Language	English	
Course Contents	This course is connected to active involvement of students participating in design teams related to practice. This course deals with the architectural and technical design and elaboration.	
Study Goals	The student is able to - collaborate in a team with other students - work on a joint design of a specific (building) design project - integrate various aspects of sustainability into the design of the project - elaborate on components of the design challenge, related to architectural design, structural design en engineering, envelope design and engineering, climate design and engineering, etc.	
Education Method	Tutorials, workshops, (mid-term) presentations, reporting, exhibiting (if applicable)	
Assessment	Portfolio of the design, report and oral presentations will be assessed by different criteria. Also the group attitude and pro-activity of the student will be reviewed. All depending on the specific project .	
Period of Education	Varies.	

AR0149	ON SITE, Landscape architectonic explorations	15
Responsible Instructor	Dr.ir. I. Bobbink	
Course Coordinator	Dr.ir. I. Bobbink	
Education Period	4	
Start Education	4	
Exam Period	none	
Course Language	English	
Required for	students need to be master students	
Expected prior knowledge	design skills	
Summary	Please check the presentations on the Q4-free choice projects for more specific information about the site and the exact theme - this differs every year. In the course, we will study on how to define identity and how to transform ordinary spaces into specific places. We will experiment with different methods and tools. Depending on the theme we might operate as one group.	
Course Contents	In this course, you will learn how to analyse, interpret the spatial identity of a site and translate it into a landscape architectonic design. The scale of the assignment can differ from a garden to an (urban)landscape. Landscapes and cities with a strong identity are highly valued by people. Identity, heritage, continuity and transformation are important notions of todays design practise. In the course, we will study on how to define identity and how to transform ordinary spaces into specific places. Through fieldwork, the site will be studied across experimental analysis methods and techniques, also borrowed from other disciplines, like social sciences and art. The experimental analysis deals with questions related to a site exploration and notation and how to construct a design concept. It depicts the subjective, dynamic and intangible characteristics of the place such as: processes, cultural activities, memories, stories, experiences, rituals by for examples sensorial perception, tracing narratives, investigating historic sources, mapping spaces in various ways and working with experimental photography, etc. As a frame, the course offers an interdisciplinary debate on the theory of place making which feeds the design experiment. These design experiments can become models, films or real constructions in the public realm. The course will involve third parties, for example ongoing research in the section of landscape architecture, assignment from practise or can be part of an event like the Oerol festival on Terschelling etc.	
Study Goals	- to acquire knowledge of the physical form of a specific landscape; - to acquire and use theoretical knowledge on place making; - to study, visualise and edit the topography and spatial identity of a landscape (experimental analyses); - to build a relationship among landscape architecture and other fields of science like geology, archaeology, ecology, history, anthropology, and other creative disciplines like art, architecture and urbanism; - to design a landscape architectonic space.	
Education Method	studio work (experimenting) interactieve lectures workshops fieldwork	
Assessment	oral presentation with the help of: drawings models films or real constructions in the public realm	
Period of Education	Quarter 4	
Minimum aantal deelnemers	15	
Maximum aantal deelnemers	15	

AR0225	MSc2 Studio: Urban (Re)Development Game	12
Responsible Instructor	Y. Chen	
Course Coordinator	Y. Chen	
Instructor	Prof.dr. E.M. van Bueren	
Instructor	Dr.mr. F.A.M. Hobma	
Instructor	Mr.dr. P. Jong	
Instructor	Dr. C. Maat	
Instructor	Dr.ir. M. Spaans	
Instructor	Dr.ir. P.L.M. Stouten	
Instructor	Ir. H.W. de Wolff	
Instructor	Dr.ir. R. Binnekamp	
Instructor	Dr.ir. S. Zijlstra	
Instructor	Dr.ir. L. Volker	
Instructor	Dr.ir. R.S. van der Kuij	
Instructor	Dr.ir. T.A. Daamen	
Instructor	Dr.ir. E.W.T.M. Heurkens	
Instructor	Prof.dr. P.J. Boelhouwer	
Instructor	Drs. P.W. Koppels	
Instructor	Dr.ing. G.A. van Bortel	
Instructor	Y. Chen	
Instructor	Dr.ir. E.H. Stolk	
Instructor	Dr. W.J. Verheul	
Instructor	Ir. L.G.C. Heijnders	
Instructor	Dr. I. Nase	
Contact Hours / Week x/x/x/x	0/0/0/X	
Education Period	4	
Start Education	4	
Exam Period	4	
Course Language	English	
Expected prior knowledge	Semester 1 of Master course from Faculty of Architecture and the Built Environment	
Summary	The course is meant for master students from the department of Architecture and Urbanism who have not followed any economic course. During this unit course the theory and the practice of managing urban (re)development processes is explored through lectures, role-playing simulation in urban (re)development project at area scale, as well as at the portfolio and object scale. A third component is finance.	
Course Contents	<p>The unit of course aims to train students to grasp an integral approach when managing urban (re)development both at the urban area scale and at the portfolio and object scale. Through a role-playing simulation project, students will be given design assignments that drive them to (re)develop a complex urban location with both residential and non-residential elements.</p> <p>The assignment aims at drawing up a development plan for the location. The students, through this exercise, will play the roles of local authorities and private actors as well as third parties of the area and negotiate in their respect roles to reach an optimal solution. Students will conduct feasibility analysis of a particular real estate objective at the portfolio and object scale.</p> <p>This unit will equip students with sufficient skills to deal with the assignment in the simulation with a series of lectures and sessions of fieldwork, role assistance and group supervision. Students will learn about the context, goal, actors and means of realisation related to each phase of the urban area development cycle. In this process, students have to consider how to make a balance between market demand, spatial quality requirement with available means.</p>	
Study Goals	<p>The unit aims to enable students to:</p> <ul style="list-style-type: none"> - understand the changing context of global and local environment and economic, social and cultural elements which contribute to various urban problems - understand the context, content, players and means of implementation during the cyclic phases of urban area development; identify positions, objectives and means as well as strategies of involved parties in different phases - analyze the social-economical and urban context as well as the status and function the area can possibly achieve in the future - set up functional programs for the area in question; identify spatial possibilities and, the feasibility and financial consequences of investments; develop institutional and financial plans for different phases in order to manage and oversee the development design and implementation process, thereby effectively integrating the input of the various actors in the project - conduct feasibility studies of real estate portfolio strategy with involved and/or potential stakeholders and the cost-benefit analysis of a particular building block at the object level - integrate multidisciplinary knowledge through teamwork, negotiate and communicate with different parties, present project results and reflect the development process with an analytical report 	
Education Method	<p>The program of The Urban (Re)development Game comprises three parts:</p> <ul style="list-style-type: none"> - Theory: the knowledge of the theory on managing urban development is acquired through lectures and literature study - Practicum: the practice skills are acquired through role-playing in a management game, with support from role lectures, supporting literature and consultation provided by role assistance and group supervision. Students are asked to work on a master plan of a specific location and then examine its feasibility plan of a particular role at portfolio and object level. -Real estate finance: the knowledge of finance is acquired through lectures and literature study 	
Literature and Study Materials	<p>The compulsory literature for Theory is:</p> <p>Franzen, A., Hobma, F., de Jonge, H. and Wigman, G (eds) (2011) Management of Urban Development Processes: governance, design, feasibility. Amsterdam: Technpress.</p> <p>Adams, D. & S. Tiesdell (2012), Shaping Places: Urban Planning, Design and Development. London: Routledge.</p> <p>Other digital compulsory and supporting literature is available from the blackboard and is updated yearly.</p>	
Assessment	<p>The result will be determined by:</p> <ul style="list-style-type: none"> - the theory component, assessed through individual 3,5 hour exam - the practice component, assessed through the quality of design assignment, the quality of presentation performance, the quality of argument and reflection in the end report - The finance component, assessed through assignment and exam 	

Exam Hours	Theory: 3,0 hours
Special Information	The maximum marking period is 10 work days.
Period of Education	Quarter

AR0681	Heritage and Architecture Design Studio: Research and architectural design	12
Responsible Instructor	Ir. W.L.E.C. Meijers	
Responsible Instructor	Prof.ir. W. de Jonge	
Course Coordinator	Ir. W.L.E.C. Meijers	
Instructor	Ir. W.L.E.C. Meijers	
Instructor	Dr. S.A. Stroux	
Instructor	Ir. A.C. de Ridder	
Instructor	Ir. W. Willers	
Contact Hours / Week x/x/x/x	8 hours per week	
Education Period	3 4	
Start Education	3	
Exam Period	none	
Course Language	English	
Course Contents	The chair of Heritage & Design is concerned with re-designing and researching buildings of significance in cultural-historical context. In this studio the cultural, historical, societal and urban context of a built structure are analysed and interpreted in relation with architectural and technical features. Historical development, urban context, typology, materialisation, technical elaboration and related literature are the main issues in a synchronic method of analysing and re-designing. Students individually create a re-design that shows a meaningful translation of an intervention strategy into the spatial, functional, urban, material and technical design. The design choices are based in an understanding in relation to cultural value.	
Study Goals	Upon completion of the Master 2 studio the student is able to: - draw conclusions from analyses and present these in an academically substantiated and comprehensive way, - define a relevant design brief and create an architectural redesign for a building or ensemble that he/she has chosen as an etude, - apply professional knowledge and design tools related to architecture, building technology and cultural value, - focus on moral sensibility, analysis, creativity and judgement skills regarding architectural ethics - explain and reflect on meaning and design development with relevant presentational means - communicate design ideas at an advanced level through verbal presentations, visual and written media.	
Education Method	Design coaching in studio during educational weeks. The design studio features individual and group tutorials, and study specific to the design project.	
Literature and Study Materials	To be announced via the tutor and/or the coordinator and/or Brightspace.	
Assessment	Presentations will be held during the semester and a final presentation at the end of the semester. Drawings, texts, models.	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Q1 / Q2 / Q3 / Q4: semester weeks 1.6 - 2.10 / 3.6 - 4.11	
Leerstoel	Heritage & Architecture	
Maximum aantal deelnemers	45	

AR0896	Van Gezel tot Meester	21
Responsible Instructor	Ir. E.J.G.C. van Dooren	
Responsible Instructor	L.A.M. Willekens	
Course Coordinator	Ir. E.J.G.C. van Dooren	
Contact Hours / Week x/x/x/x	160 hours per semester	
Education Period	1 2	
Start Education	1	
Exam Period	none	
Course Language	Dutch	
Course Contents	Didactiek in ontwerpprojecten	
	In een stage (Bachelor eerste jaar) leer je onder supervisie het vak van ontwerpbegeleider; de ervaring en problemen die je opdoet in de stagegroep kun je terugkoppelen in de onderwijsgroep. In enkele werkcolleges wordt onderzocht hoe studenten te begeleiden in het leren ontwerpen.	
	Ontwerpvaardigheid en ontwerpproces	
	In een aantal ontwerp oefeningen wordt het ontwerpproces expliciet onderzocht. Door het ontwerpproces enkele keren te doorlopen en specifiek te bestuderen wordt inzicht verkregen in meer algemene principes tijdens het ontwerpen en de eigen, individuele inbreng; ook valkuilen kunnen zo aan het licht komen.	
	Zoals een topsporter op onderdelen en het geheel traint om tot meesterschap te komen, zo kan een ontwerper ook zijn eigen ontwerpproces trainen. Door het kanaliseren van gewoontes en het bewust worden van essentiële ontwerpmomenten kom je tot meesterschap in het ontwerpproces.	
Study Goals	De student is in staat een coherent, betekenisvol, uitgewerkt, juist en innovatief ontwerp te maken en onderzoek te doen - op hoofdlijn en in details - op Msc 2 niveau.	
	Specifiek voor deze cursus: de student	
	1. heeft inzicht in het (eigen) ontwerpproces en in het (ontwerp)docentschap	
	2. is in staat korte ontwerp opdrachten te doen en heeft de basisvaardigheden als (assistent) ontwerp docent	
	3. is in staat een kort onderzoek te doen naar het (eigen) ontwerpproces en de aspecten van het ontwerpdocentschap	
Education Method	- stage als assistent-begeleider in een eerstejaars ontwerpproject	
	- ontwerponderwijs op atelier (meerdere ontwerp opgaves)	
	- enkele werkcolleges	
	Kennis en toepassing zijn tijdens het leren met elkaar geïntegreerd. De cursus is opgebouwd uit een groot praktijk gedeelte (ontwerpen / begeleiden) met op een aantal momenten compacte input van kennis en theorie.	
	Het ontwerp onderwijs vindt in principe plaats op dinsdag en vrijdag middagen, en een aantal werkcolleges op woensdagmiddag	
	- wijzigingen in verband met de stage voorbehouden	
	De stage vindt plaats in het tweede kwartaal.	
Assessment	Didactiek stageverslag waarin opgenomen een observatie en een reflectie (9 studiepunten).	
	Ontwerpresultaten en reflectie op ontwerpproces (12 studiepunten).	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Semester	
Maximum aantal deelnemers	hangt af van beschikbare stageplaatsen	

AR2AD010	MSc2 Dwelling design studio 'Global Housing'	12
Responsible Instructor	Ir. H.A.F. Mooij	
Course Coordinator	P.S. van der Putt	
Instructor	Prof.ir. D.E. van Gameren	
Education Period	3	
	4	
Start Education	3	
Exam Period	none	
Course Language	English	
Course Contents	The MSc 2 AR2AD010 Global Housing Studio focuses on the worldwide issue of affordable mass housing schemes. The assignment involves designing a housing project, with the aim of providing solutions that cater for the creation of socially and ecologically sustainable urban environments as an alternative to current practices of large-scale developments, public and private, based on models. Participating in the studio requires a site visit to Ahmedabad, India of approximately two weeks.	
Study Goals	Learning Goals MSc 1/2 GLOBAL HOUSING	
	After completion of this course the students is able to:	
	1. Recognise and explain morphological and typological qualities of urban housing neighbourhoods .	
	2. Formulate a design strategy for affordable housing in relation to densities, multiple user groups, access & circulation, privacy & community and patterns of daily life.	
	3. Design and develop an urban plan for affordable housing on a proposed site.	
	4. Design and develop an urban housing neighbourhood accomodating the various relations of the design strategy.	
	5. Design and develop different dwelling types in relation to specified needs and usability.	
	6. Identify and explain the qualities of the proposed design in relation to project references and experience.	
	7. Identify appropriate building techniques and construction systems to be employed as part and parcel of the design proposal.	
	8. Produce meaningful visual and physical outputs to communicate the project to an audience of experts.	
Education Method	Tutoring of the design progress in the design studio. Workshop week	
Assessment	Examination takes place in the form of a mid-term and final oral presentation of design and analysis in drawings and images, followed by an oral examination in questions and answers.	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Education starts in week 3.6 and ends in week 4.11	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR2AI010	Interiors Buildings Cities MSc2 Design Project	12
Responsible Instructor	Prof. D.J. Rosbottom	
Course Coordinator	Ir. S. Pietsch	
Instructor	Ir. M.E. Stuhlmacher	
Instructor	Ir. L.M.M. de Wit	
Instructor	M. Pimlott	
Instructor	D.H.G. Somers	
Instructor	Ir. S. Pietsch	
Instructor	Ir. J.S. Zeinstra	
Instructor	Ir. drs. E.P.N. Schreurs	
Instructor	S.S. Mandias	
Instructor	Prof. D.J. Rosbottom	
Contact Hours / Week x/x/x/x	4 hours per week	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Summary	<p>The Chair of Interiors Buildings Cities is concerned with making buildings, in places, for people. It conceives of the city, at each scale, as a work of architecture and, hence, the responsibility of the architect. This developing discussion of the chair is contextualised through an annual theme.</p> <p>The MSc2 course, Thinking through Making, encompasses design research investigations into thinking about, making and representing architecture, up to and including 1:1 scale.</p>	
Course Contents	<p>The MSc2 programme is a platform for special research and design projects proposed by members and associates of the Chair of Interiors Buildings Cities. At the heart of each of these projects, renewed every semester, is a research question or opportunity that yields possibilities for responses through design, and realised in tangible artefacts or models.</p>	
Study Goals	<p>Upon completion of the Master 1, 2, 3 & 4 studio trajectory the student:</p> <ul style="list-style-type: none"> - Has developed the skills in architectural design satisfying both aesthetic and technical / functional requirements. During the trajectory the complexity of the architectural design increases leading to a level fit for architectural practice and a training period for professional accreditation as architect. - During this trajectory skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology and human sciences. - Additionally, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and society's needs, including environmental aspects. - During Master 1, 2, 3 & 4 process skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing. - Together with the training with regard to aspects of building technology, during the Master 1, 2, 3 & 4 process skills are acquired to incorporate an understanding of the design process with regard to structural design, materialization of buildings and interiors, comfort and climate design. <p>A specific description of the aims of the studios will be published in the Studio Manual, to be distributed at the beginning of the course.</p>	
Education Method	<p>The design studio features individual and group tutorials, and study specific to the design project as well as several dedicated thematic exercises, internal lectures and seminars that pertain to and inform the subject.</p>	
Literature and Study Materials	to be announced upon beginning of the course	
Assessment	<p>Assessment will focus on the research work undertaken by the individual student within the set theme; the specific research questions raised within; the specific design study that responds to those questions; the representation of that study in a physical artefact made by the student.</p> <p>Products: models up to 1:1 scale; drawings / texts if applicable</p> <p>The project will be assessed on:</p> <ul style="list-style-type: none"> - the position that is formulated with regard to the brief and its context; the contribution to a collective discourse. - the appropriateness of the intervention with respect to the assignment; the feasibility and translatableability of the idea into a physical manifestation. - aesthetic and technical / functional qualities; the elaboration throughout the respective scales - the quality of the presentation, the products and the argument. - the consistency and coherence and development of the students work during his / her process 	
Special Information	The maximum marking period is 10 work days.	
Period of Education	The project starts in week 6 of the first quarter and extends towards the end of the semester. An introduction meeting will take place at the beginning of the semester.	
Leerstoel	Interiors Buildings Cities	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR2AP012	MSc2 Public Building Design Studio	12
Responsible Instructor	Dr.ir. M.G.H. Schoonderbeek	
Responsible Instructor	Dr.ir. S. Komossa	
Course Coordinator	S. Milani	
Course Coordinator	Ir. A.M.F. van Dam	
Instructor	Ir. F. Geerts	
Instructor	Dr.ir. S. Komossa	
Instructor	Ir. M.J. de Haas	
Instructor	Ir. A.M.F. van Dam	
Instructor	Dr.ir. M.G.H. Schoonderbeek	
Instructor	S. Lee	
Instructor	O.R.G. Rommens	
Instructor	A.S. Alkan	
Instructor	N.E.A.I. Deboutte	
Instructor	N. Marzot	
Instructor	S. Milani	
Contact Hours / Week x/x/x/x	8 hours per week	
Education Period	3	
Start Education	4	
Exam Period	3	
Course Language	English	
Course Contents	A-PB's MSc. 2 studio focuses on the conditions under which architecture operates through the limits of global urbanization and emerging contexts, as well as interdisciplinary processes that blur disciplinary bounds. These conditions allow for elaboration on formal expressions of the architects position in regard to both the disciplinary context and the breach of the disciplinary boundaries themselves.	
Study Goals	<p>Architecture distinguishes itself from mere building: it aspires to accomplish above and beyond meeting necessities and to provide something out of ordinary. We can surmise that architecture stipulates "exceptions" that set itself apart from everyday built environment. Therefore, architecture deals with specificity rather than generality.</p> <p>A-PB's MSc. 2 design studio aims to initiate various design agendas from the specificities and/or exceptionalities of a particular material culture of a place arriving at a fully elaborated architectural design. The studios hinge around the specificities through which the students are confronted with singular aspects of different situations. By elaborating on the core issues and eventually defining their own design positions, students are expected to implement their research into design practice within the collective framework.</p> <p>The sites and urban conditions that vary each year provide testing ground for diverse scales of inquiry, intervention, analysis and cultural perspective. Architectural means, instruments and techniques provide operative interface but also focus on a set of precisely delineated a priori as compositional constraints. Hence design research is exercised by and within the instruments, techniques and languages of architectural design.</p> <p>The cities of the design groups will be announced shortly before the enrollment period starts. Each enrolled student will have an opportunity to choose the group of his/her preference.</p> <p>Each city-group requires an excursion abroad. The excursion may cost around 400 or more per person for transport, lodging and other expenses depending on the location.</p>	
Education Method	<p>Learn to design an architectural object that meets aesthetic as well as technical and functional requirements.</p> <p>Understand the relationship between architectural work and its context, as well as the ways to relate architectural experimentation to culturally conducive urban environment.</p> <p>Understand the role of architects and architecture in society.</p> <p>Develop the ability to clarify a design project to others by means of images, spoken and written words.</p>	
Assessment	<p>Studio: 112 hours Lectures: 8 hours Independent study: 216 hours</p>	
Special Information	<p>Studio attendance & participation</p> <p>Excursion participation</p> <p>Mid-term (week 4.2) and final (week 4.10) reviews</p> <p>(Specific weeks & dates of the presentation may be subject to change according to the official academic calendar of the university.)</p>	
Special Information	<p>The studio work may include and be supplemented by charrettes, informal/intermediate reviews, as well as by supplementary lectures and workshops.</p> <p>Shortly prior to the beginning of the semester, each student will have an opportunity to choose and sign up for one of the city-groups. The student must select and express the first, second and third preferences. When the preferences are missing, the student will be randomly assigned to a city-group.</p> <p>After the city-studio selection process, each student will also be given an opportunity to switch places 1:1, if necessary and at the discretion of the studio instructors.</p> <p>During the first half of the semester, until the midterm review, the students will work in groups.</p> <p>The maximum marking period is 10 work days.</p> <p>For more information, contact: pb-edu-bk@tudelft.nl</p>	

Period of Education	Semester
----------------------------	----------

AR2AT020	Agential Materialism Architecture Theory Design Studio	12
Responsible Instructor	Dr.ir. H. Sohn	
Course Coordinator	Dr.ir. H. Sohn	
Instructor	Dr.ir. A. Radman	
Instructor	Dr.ir. H. Sohn	
Instructor	Dr.ir. S. Kousoulas	
Instructor	Dr. A. Altes Arlandis	
Contact Hours / Week x/x/x/x	8 hours per week	
Education Period	4	
Start Education	4	
Exam Period	none	
Course Language	English	
Required for	This course is an elective choice for the required MSc2 studio credits.	
Expected prior knowledge	Students with interest and motivation in theoretical and conceptual aspects of architecture design are encouraged to join this studio.	
Course Contents	<p>The Architecture Theory Studio Agential Materialism is a design studio with a strong theory component that engages architecture as a material-discursive practice, in which the conceptual and the non-conceptual (theory & design) are regarded as fully agential and relational: they happen and emerge in the same space-time-matter continuum. In our studio we will investigate conceptual terms such as matter, objects, things, bodies, as well as the notions of process, change, emergence and agency, among many others, as a means to investigate their application and potential for architecture design. Our studio explores the power of concepts as methods for practice, and experiments with the affective capacities of matter as fundamental in the genesis of form.</p> <p>The thematic and design assignments of our studio vary, but always depart from actions rather than programmatic or functional prerequisites, foregrounding the potentials of architectural, material and spatial agencies involved in the design process.</p> <p>This studio is highly experimental and hands-on in regards to the material aspects of theory as practice. It welcomes students who are inclined to explore unfamiliar (yet exciting) themes, raise interesting questions and problems, and experiment with ideas and matter to make their design practice and skills more meaningful.</p>	
Study Goals	<p>After completion of this design studio the participants will:</p> <ul style="list-style-type: none"> have a solid base of knowledge on recent literature in the humanities and the social sciences and their relation to architecture practice and theorization have acquired solid knowledge-base to discern theoretical, analytical and synthetic methodologies and their application in the design process. have developed a deeper understanding of the relationships, potentials and interactions of different agents involved in any design process. have developed experimental and innovative design skills through conceptual, abstract and theoretical thinking. have experimented with different media and tools as aids for the communication of architectural proposals and ideas. have acquired research skills, and will be able to apply these in reflections and theoretical argumentation of their design projects. will have acquired understanding of the societal, cultural, technological and ethical dimensions of a design process that includes human and non-human actors alike. 	
Education Method	<ul style="list-style-type: none"> monthly lectures and weekly theory seminars discussion on related themes weekly design studio reviews presentations (interval & final) with visiting critics 	
Course Relations	<p>This course is compatible with the Architecture Theory Thesis course (AR2AT030). We encourage students to follow both courses in the same semester.</p> <p>Students wishing to participate in both courses are advised to register in the enrolment period for the Spring semester.</p>	
Literature and Study Materials	<p>Study material, reading lists and other relevant course-related literature will be made available to the students prior to the first meeting.</p>	
Prerequisites	<p>Students wishing to participate in this course are strongly recommended to have completed the necessary credits for MSc1.</p>	
Assessment	<ul style="list-style-type: none"> methodology development architectural design proposal theoretical reflection 	
Special Information	<p>This course is highly compatible with the Architecture Theory Thesis (AR2AT030). Students wishing to follow this studio are advised to enrol in both courses. Please note that the courses have different education periods (Q1/3 & Q4 respectively)! For questions please contact our student assistants or the academic coordinator at AT-MSc-BK@tudelft.nl</p>	
Elective	Yes	
Tags	<ul style="list-style-type: none"> Abstract Adventurous Design Group work Intensive Process Research Methods 	
Period of Education	This studio is offered only in Q4 (Spring term) of each academic year.	
Leerstoel	Architecture Theory Chair	
Maximum aantal deelnemers	20 students	

AR2CP010	MSc2 Complex Projects Design and Research Studio	12
Responsible Instructor	Prof.ir. C.H.C.F. Kaan	
Course Coordinator	M. Triggianese	
Contact Hours / Week x/x/x/x	80 hours per Quarter	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	BSc and MSc 1 completed	
Course Contents	<p>AMBITION In Master 2 we focus on Cities. This research and design studio promotes broad speculation, independent thinking, collective work with the aim of positioning architecture into a broader social, cultural, political, and economic context. Through the various themes, students are exposed to the versatile layers of the city, while simultaneously expected to engage their observations with daily studio work. Understanding the hard and soft layers, that actually define the values of a contemporary city, can lead towards ambitions to follow. After forensic analysis of the layers, a new framework will be developed for the project area that will be extracted and developed in detail.</p> <p>EVALUATION Evaluations will be based on the research approach, dedication, commitment, effort and improvement of the team in the investigation of the City (and the project area). Concrete aspects for evaluation are: research work, clarity of the problem statements, originality of the final presentation. Please contact the course coordinator for the specific programme / cities of the semester.</p>	
Study Goals	<p>The student: Has developed the skills in architectural design satisfying both aesthetic and technical/functional requirements. During the trajectory the complexity of the architectural design increases leading to a level fit for architectural practice. During this trajectory, skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology and human sciences. Additionally, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and societies needs, including environmental aspects. During MSc1, 2, 3 & 4 process skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing.</p>	
Education Method	Besides studio program students are expected to fully engage with events and people which the sites have to offer. Workshops, lectures, tours and travels are included in the studio programme.	
Assessment	Midterm presentation including research, argument and concept. Final presentation with posters and research booklet. Additional visualisation tools can be used, such as video, reportage, models.	
Special Information	As part of the Complex Projects objective, the search for definition of city guides the Design and Research studio, 'IN Cities' studio in its most direct way. Please contact the studio coordinator to know this year's case studies.	
Period of Education	Semester	
Leerstoel	Complex Projects, department of Architecture	
Minimum aantal deelnemers	12	
Maximum aantal deelnemers	16	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR2FM010	The Delta Shelter	12
Responsible Instructor	P.A. Koorstra	
Course Coordinator	P.A. Koorstra	
Education Period	3 4	
Start Education	3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	BSc and Master 1	
Course Contents	<p>The assignment is to design a small project in a Delta environment; a dynamic and natural surrounding on the border of water and land.</p> <p>The infinity of the location and the constant changing conditions invite to research the meaning of boundaries and the integration of the landscape in the design. The experience of the specific and poetic qualities of this environment will be one of the explicit themes in this course; the contradiction between the human scale and the unrestricted landscape, the influence of wind and tide, the flora and fauna and the position of human within this often vulnerable ambience.</p> <p>The role, impact and contribution of architecture in such places is part of the research in this assignment. More specific the typology and manifestation of the architecture will be discussed and developed on the basis of the design proposals. The ethics and aesthetics of architecture will be discussed regarding questions as; What are the necessary conditions for architecture to give a satisfying contribution to this environment? Is it inevitable that architecture is a disturbing factor, can it only be of temporary presence, or can architecture contribute to the appreciation and preservation of these kind of environments?</p> <p>The project will be developed by using physical scale models, hand sketches and text during all the phases of the design process; the analysis, design and presentation. The aim of this method is to stimulate the creative process by using the physical model and drawing as a feedback and inspiration tool to develop the concept into a design.</p>	
Study Goals	<p>-The student will gain competence is conducting design research and research-by-design by using physical models and hand drawings as a tool throughout the design process.</p> <p>-The student will gain insight in collaborating and communicating by making active use of various scale models to present the design in all its aspects; the architectural composition, materialisation and integration of construction.</p> <p>-The student will be able to communicate his contemplations and reflect on the role and position of the architect in this assignment.</p>	
Education Method	lectures and design studio format. Weekly assistances in groups as well on individual basis.	
Assessment	<p>Assesment on the basis of process, analysis, documentation and (re)presentation of the end result. A brief reflective statement of max 450 words is part of the assesment.</p> <p>Presentation will contain a variety of physical models, drawings, photographs and text.</p> <p>The products should give a clear insight in spatial design, the construction and the relation and meaning of the design towards its environment.</p> <p>The student has achieved a sufficient result on scale 1 to 10 with 6, has the possibility to take a resit with a mark between 5 and 6 and failed with 4,9 or minor. Resit has to be completed within 2 weeks after completion the studio.</p>	
Special Information	coordinator	
Remarks	A site visits can be part of the studio	
Period of Education	Q3 & Q4, 15 weeks, starting in week 3.6	
Leerstoel	Form & Modelling Studies, Architecture	
Minimum aantal deelnemers	12	
Maximum aantal deelnemers	32	

AR2MET010	Transdisciplinary Encounters	12
Responsible Instructor	Dr.ir. P.J. Teerds	
Responsible Instructor	Dr.ir. K.M. Havik	
Course Coordinator	Dr.ir. P.J. Teerds	
Instructor	Dr.ir. P.J. Teerds	
Contact Hours / Week x/x/x/x	4 hours per week	
Education Period	4	
Start Education	4	
Exam Period	none	
Course Language	English	
Course Contents	<p>The field of architecture holds a broad set of research and design methods, but also has the capacity to productively engage with approaches and perspectives from other fields that deal with the built environment such as literature, arts, cinema, philosophy, psychology, and social sciences. In contemporary architectural practice several architects (Steven Holl, Peter Zumthor, Bernard Tschumi, Rem Koolhaas) have used these productive encounters and exchanges with other fields to reorient architectural analysis and design.</p>	
	<p>The Msc2 studio Transdisciplinary Encounters offers a site of exploration for students interested to pursue the possibilities of the encounter between the architectural practice and other disciplines. These may be artistic disciplines, providing instruments such as literary description, narrative, montage and scenario writing, or disciplines from social sciences, providing fieldwork techniques related to social spatial practices and user behaviour. The studio encourages students to develop experimental methods of analysis and design in order to obtain new design solutions.</p>	
	<p>This studio is dedicated to the exploration of a broader scope upon the built environment by using encounters and exchanges with methods from other disciplines. It focuses on the implementation of investigative and creative methods from these fields, particularly focussing on site research and how such new methods and ways of looking can be implemented within the field of architecture.</p>	
	<p>The studio exercise will depart from specific and extensive fieldwork methods, and aims to carry out a site-specific analysis with experimental techniques. Results from the site analysis will be brought to the field of architecture step by step, in order to lead to architectural or urban strategies of intervention.</p>	
Study Goals	<p>the student:</p> <ul style="list-style-type: none"> -becomes acquainted with approaches from other disciplines such as literary, artistic and cinematographic practices, or social science disciplines -learns to conduct field work on site -learns to use and develop experimental methods of analysis and design -implements investigative and creative methods from these fields to conduct site research and develop urban or architectural strategies for a given site 	
Education Method	<p>Combined seminar and studio; in-situ fieldwork. Through experimental in-situ fieldwork the studio will develop tools in order to understand and address the issue of the public realm of a specific city, area or neighbourhood. To do so, during the studio students will adopt and adapt techniques from different other scientific or artistic fields that adjust the profession of architecture, like social geography, anthropology, sociology, and philosophy or sculpture, literature, and cinema. Through these investigations, detailed quantitative and qualitative mappings can be drawn, based on statistical analyses, socio-historical research and in-depth interviews. Depending on the specific approach of the studio, these techniques can be combined with particular drawing techniques such as the section, the softmap and the collage. The site research will thus result in evocative and speculative drawings, models, texts, and films. In a concise presentation the students are requested to evoke their projects and visions on a larger urban scale, as well as to propose site-specific interventions.</p>	
Assessment	<p>For this elective course, the process and the development of appropriate tools for fieldwork and the students reflection upon these methods and the results of the fieldwork will be assessed through mid-term presentations and a final presentation. Criteria are focussing on the consistency of the project: the relation between methods, research findings and urban or architectural strategy.</p> <p>The students are expected to bring their work together in a collective book, thereby showing the broad perspective of site investigations and developed strategies. For the final presentation, representatives from the given site and disciplinary field will be invited as guest critics.</p>	
Elective	Yes	
Tags	Research Methods	
Period of Education	Quarter	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

MSc1 Design Projects

AR1AD011	Dwelling Design Studio: 'The Netherlands'	12
Responsible Instructor	Ir. P.S. van der Putt	
Course Coordinator	Ir. P.S. van der Putt	
Instructor	Ir. P.A.M. Kuitenbrouwer	
Instructor	Ir. O. Klijn	
Contact Hours / Week x/x/x/x	112 hours per semester	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Course Contents	<p>Students of the Dutch Housing Studio design a residential complex in an urban environment in the Netherlands. The design is accompanied/preceded by research into the design assignment and the specific topics of the studio.</p> <p>Each semester the design assignment may be different from the one before. Oftentimes there are two studio options (however, the chair reserves the right to cancel an option if there is a lack of interest from students).</p> <p>Though topics may vary from one semester to the next, at the core of each studio lies the design of dwellings and of the dwelling environment, complemented by research and literature study. Design work is done individually, while some of the research may be performed in teams.</p> <p>Topics of the Studio may include (but are not limited to) the inclusive city, work-live combinations, projects for specific target groups, and small scale interventions. More specific information about the design assignment of the upcoming semester can be found on the website and at the Master-information meetings that take place twice a year.</p> <p>All MSc 1 Dwelling students will take part in a site excursion as well as a workshop or master class revolving around the theme of the studio. The studio is not available for MSc 2 students. MSc 1 students are required to also enrol in Architectural Studies (AR1AD030) and Architectural Reflections (AR1AD040).</p>	
Study Goals	<p>Upon completion of the course the student is able to</p> <ul style="list-style-type: none"> design a sketch version of an urban plan for a given area in terms of massing, program and zoning. design a complex residential building with additional functions, subscribing to the functional demands of the brief and the spatial, structural, technical and aesthetic requirements of architecture. design several dwellings that suit functional demands of their respective target groups. perform research of precedent projects and to demonstrate their impact on his/her own design. develop and compare design alternatives. critically reflect on the assumptions and starting points of the brief. convey his/her design ideas by way of (oral) presentations. critically reflect on his/her own design process. 	
Education Method	Studio: 70 hours Self-study: 266 hours	
Assessment	<p>Presentations will be held throughout the semester; assessment by way of final presentations at the end of the studio. Exact requirements to be announced at the start of the studio.</p> <p>The final grade (F) for AR1AD011 will be a weighted average of the Architecture grade (A) and the Building Technology grade (BT), such that $0,8 \times A + 0,2 \times BT = F$. Both A and BT will be rounded to half or whole points. The final grade will be rounded to one decimal place.</p>	
Special Information	The maximum marking period is 10 working days.	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1AE010	EXTREME architecture	12
Responsible Instructor	Prof.dr.ing. U. Knaack	
Course Coordinator	Ir. R. Schroën	
Contact Hours / Week x/x/x/x	12 hours per week	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Course Contents	<p>The project is about building in a extreme situation, in respect to climate, location and function. Essence is the interaction between the extreme circumstances, the technical solutions, and the architecture. Extreme circumstances do request technical solutions which will be the starting point for the design development. The designer has to direct the 'engineer questions and answers', towards the articulation of the form which is based on integration of aesthetic and technology.</p>	
Study Goals	<p>For this project we will be focussing on the Maldives: a group of atolls which is expected to disappear below the rising sea level. How can we use architecture and engineering to preserve this community?</p>	
	<p>"Die Architektur des 21 Jahrhunderts hat ihre Unschuld verloren, Gebaude müssen etwas leisten" Stefan Behnisch.</p>	
	<p>In the end the student is able to understand technical solutions, to reflect on them, to applicate them and to transform them. And the student is able to design a coherent design result.</p>	
	<p>Upon completion of the MSc1, 2, 3 & 4 studio trajectory the student:</p>	
	<p>Has developed the skills in architectural design satisfying both aesthetic and technical/functional requirements. During the trajectory the complexity of the architectural design increases leading to a level fit for architectural practise.</p>	
	<p>During this trajectory skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology and human sciences.</p>	
	<p>Additionally, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and societys needs, including environmental aspects.</p>	
	<p>During MSc1, 2, 3 & 4 process skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing.</p>	
	<p>Together with the training with regard to aspects of building technology, during the MSc1, 2, 3 & 4 process skills are acquired to incorporate an understanding of the design process with regard to structural design, materialisation of buildings, comfort and climate control.</p>	
	<p>In the end the student is able to design a healthy coherent building in extreme conditions with a focus on technical solutions: the student is able to apply, reflect and transform principles concerning climate, construction and structure.</p>	
Education Method	Design project	
Assessment	The design result including the aspects structure, climate and envelope.	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1AI010	Interiors Buildings Cities MSc 1 Design Project	12
Responsible Instructor	Prof. D.J. Rosbottom	
Course Coordinator	Ir. S. Pietsch	
Instructor	Ir. M.E. Stuhlmacher	
Instructor	Ir. L.M.M. de Wit	
Instructor	M. Pimlott	
Instructor	D.H.G. Somers	
Instructor	Ir. S. Pietsch	
Instructor	Ir. J.S. Zeinstra	
Instructor	Ir. drs. E.P.N. Schreurs	
Instructor	S.S. Mandias	
Instructor	Prof. D.J. Rosbottom	
Contact Hours / Week	4 hours per week	
x/x/x/x		
Education Period	1	
Start Education	2	
Exam Period	3	
Course Language	English	
Summary	<p>The Chair of Interiors Buildings Cities is concerned with making buildings, in places, for people. It conceives of the city, at each scale, as a work of architecture and, hence, the responsibility of the architect. This developing discussion of the chair is contextualised through an annual theme.</p>	
Course Contents	<p>The MSc1 course, The House in the City, considers detailed material and spatial programmes for proto-typical city buildings with the intention of nurturing architectural sensibilities in students that are attuned to context, users, relations, appearances, spaces and interiors, materiality, and construction.</p>	
Study Goals	<p>MSc 1 is structured as a series of parallel studios, run by a dynamic mix of practitioners and academics and collectively concerned with interpretations of a common theme, the House in the City. Understood ambiguously, as in the German Haus, the concerns of the course are not the representative monuments of culture, nor the private houses of individuals. Instead, projects explore those buildings that stand between, housing our collective urban life and oscillating, in our consciousness, between foreground and background. Carefully wrought, spatially rich, generous and adaptable, such buildings have the capacity to evolve over time and to engage in a territory that might encompass both extended domestic and intimate public life. As discrete elements, subservient to a larger whole, they play small but significant roles in structuring urban fabric and defining urban space, simultaneously taking pleasure in the heterogeneity of the contemporary city and bringing it into order.</p> <p>Through individual projects, each studio addresses how such city houses might be made, experienced and inhabited, in time and space and in response to the particularities of place. Through careful drawing and iterative making, their individual characters emerge in a welcoming interior, through a moment of figuration or in the refinement of a façade.</p> <p>The contents of the individual studios will be published at the beginning of the semester. Students are asked to indicate their preference for one of them. Usually the studios include a 2-3-day excursion to a location relevant to the project. The corresponding information will also be communicated at the start of the semester.</p> <p>The MSc1 Design Project (Ar1Ai010) is conceived in conjunction with the Fundamentals course (AR1Ai040). Students are required to enrol to both courses.</p>	
Education Method	<p>Upon completion of the Master 1, 2, 3 & 4 studio trajectory the student:</p> <ul style="list-style-type: none"> - Has developed the skills in architectural design satisfying both aesthetic and technical / functional requirements. During the trajectory the complexity of the architectural design increases leading to a level fit for architectural practice and a training period for professional accreditation as architect. - During this trajectory skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology and human sciences. - Additionally, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and society's needs, including environmental aspects. - During Master 1, 2, 3 & 4 process skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing. - Together with the training with regard to aspects of building technology, during the Master 1, 2, 3 & 4 process skills are acquired to incorporate an understanding of the design process with regard to structural design, materialisation of buildings and interiors, comfort and climate design. <p>A specific description of the aims of the studios will be published in the Studio Manual, to be distributed at the beginning of the course.</p>	
Literature and Study Materials	<p>The design studio features individual and group tutorials, and study specific to the design project as well as several dedicated thematic exercises, internal lectures and seminars that pertain to and inform the subject.</p> <p>A characteristic working method of the Chair is the building of physical models of varying scales in which ideas about the design project are tested and materialized.</p> <p>To be announced upon beginning of the course</p>	
Assessment	<p>The design studio concerns the development of an architectural project on all scale levels, from its urban setting to its materiality and elaboration of its details. The project will be assessed during an intermediate, pre-final and final presentation on its:</p> <ul style="list-style-type: none"> - the position that is formulated with regard to the brief and its context - the appropriateness of the intervention with respect to the assignment - aesthetic and technical / functional qualities - the elaboration throughout the respective scales - the integration of the disciplines included - the quality of the presentation, the products and the argument. - the consistency and coherence and development of the students work during his / her process <p>The products to be assessed include the design proposal represented through drawings, models and text; the project journal and</p>	

	the portfolio.
	The final grade consists of partial grade of 80% for Architecture and 20% for Building Technology. Both grades need to be sufficient for the student to pass.
Special Information	The maximum marking period is 10 work days.
Period of Education	Semester
Leerstoel	Interiors Buildings Cities
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/

AR1AR011	Heritage and Architecture Design Studio: Architectonic Design	12
Responsible Instructor	Ir. W. Willers	
Course Coordinator	Ir. W. Willers	
Instructor	Ir. A.W. Hermkens	
Instructor	Ir. W. Willers	
Contact Hours / Week x/x/x/x	8 hours per week	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Summary	The design assignment focuses on the intervention at existing buildings or ensembles to meet requirements of contemporary and future use. The design process will be guided by exploring design possibilities and architectural consequences of the design.	
Course Contents	<p>The object of this Heritage & Architecture studio is the architectural design for the re-use of a building or building-ensemble to meet requirements of contemporary and future use.</p> <p>A transformation framework will be made by the interpretation of the analysis of the urban context, the building and the program requirements. Various aspects of designing in existing built structures are investigated by studying reference projects and literature.</p> <p>By working on different scale-levels a coherent design will be made. At atelier meetings different aspects like relation existing new, urban context, functionality, spatial quality, technical aspects, material aspects will be discussed.</p> <p>Different presentations will help students to develop their presentation skills.</p> <p>The current debate of transformation and intervention with topics like authenticity, sustainability, layers of history, and so on is very present during this course on every single scale.</p>	
Study Goals	<p>Upon completion of the Master 1 design project the student is able to:</p> <ul style="list-style-type: none"> - interpret cultural values on urban, architectural and technical scale and create a transformation framework, - translate a transformation framework to a design strategy, and a design strategy to an elaborated design, - incorporate aspects in the field of architectural history and architectural theory, art, society's needs, human sciences and environmental aspects. - make a design satisfying functional, aesthetic and technical requirements, - position the project in the discourse, - explain the architectural design during a presentation by combining oral, written and graphic media (e.g., drawings, models) 	
Education Method	Design coaching, 4-8 hours counseling per studio during educational weeks, total 112 hours. Self study: total 224 hours.	
Literature and Study Materials	Will be delivered by the tutor and/or coordinator, or via Brightspace	
Assessment	Research booklet Presentation at the end of the semester	
Special Information	Presence at the first meeting is mandatory. For the assessment the presence during the course and the overall design process will be taken in consideration.	
Period of Education	Semester	
Leerstoel	Heritage & Design	
Minimum aantal deelnemers	12, minimum group 8 students	
Maximum aantal deelnemers	48	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1CP010	Complex Projects Design Studio	12
Responsible Instructor	Prof.ir. C.H.C.F. Kaan	
Course Coordinator	M. Triggianese	
Instructor	Ir. A.T. Richters	
Instructor	S. Filippas	
Contact Hours / Week x/x/x/x	80 hours per semester	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	BSc degree Architecture	
Course Contents	<p>As introduction to Complex Projects, this design studio, 'Landmark', has the ambition to make students familiar with the multiple aspects that define a building. Landmark assignment aims for developing skills in the scientific method of analysis and synthesis. Via anatomical dissection, students learn to identify soft and hard aspects of a building while placing them in the bigger frame of the total composition of the building and its context.</p> <p>The studio promotes broad speculation, independent thinking, collective work with the aim of positioning architecture into a broader social, cultural, political, and economic context. Students will perform a thorough urban research in order to understand the areas history and context, and to identify the Landmarks that could become catalyst for intervention. The research zooms in from the large scale of the city itself, to the medium scale the site, to the small scale of the building. The resulting data has to be organized into a comprehensive research book. This serves as basis for forming a narrative which is leading for the individual redesigns of the Landmark.</p> <p>The seminar AR1CP040 (Anatomy) is fully integrated with the studio. An educational trip / excursion with on-site workshops is part of the studio program. Please contact the studio coordinator to know this year's case studies.</p>	
Study Goals	<p>Upon completion of the MSc1, 2, 3 & 4 studio trajectory the student:</p> <ul style="list-style-type: none"> Has developed the skills in architectural design satisfying both aesthetic and technical/functional requirements. During the trajectory the complexity of the architectural design increases leading to a level fit for architectural practice. During this trajectory, skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology and human sciences. Additionally, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and society's needs, including environmental aspects. During MSc1, 2, 3 & 4 process skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing. Together with the training with regard to aspects of building technology, during the MSc1, 2, 3 & 4 process skills are acquired to incorporate an understanding of the design process with regard to structural design, materialization of buildings, comfort and climate control. 	
Education Method	Tutorials in studio. Research will be done in thematic groups, design is either individual or in groups of max 2 students.	
Reader	Reader (syllabus) with the studio programme, the basic literature and the weekly schedule will be provided prior to start studio	
Assessment	<p>Monthly pin ups showing research, argument and concept.</p> <p>Trial presentation two weeks prior to the final presentation. The overall work has to be finished by then. Final presentation composed of research books (with critical investigations and site-analysis) and design studio book (with design projects) and digital presentation.</p>	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Semester	
Leerstoel	Complex Projects, department of Architecture	
Minimum aantal deelnemers	16	
Maximum aantal deelnemers	32	
Course evaluation	<p>Evaluations will be based on the overall performance within the studio. The students performance will be determined by the quality of his/her work, commitment, teamwork, effort and improvement over the entire course of the semester. Concrete aspects for evaluation are; research work, argument formulation, translation argument into concept, urban plan, architectural design, presentation.</p> <p>For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/</p>	

AR1MET010	Ways of Doing	12
Responsible Instructor	Dr.ir. K.M. Havik	
Course Coordinator	Dr.ir. P.J. Teerds	
Instructor	Dr.ir. P.J. Teerds	
Instructor	Dr.ir. W.W.L.M. Wilms Floet	
Contact Hours / Week x/x/x/x	8 hours per week	
Education Period	1 2	
Start Education	1	
Exam Period	none	
Course Language	English	
Summary	<p>The studio Ways of Doing aims to develop and assess distinct methods that allow for innovative way of analysis, architectural design, and spatial intervention in challenging (post-)industrial regions in the Low Countries. Every semester a different site to work on is chosen. These (post-)industrial areas often are dominated by characteristic constructions and buildings: huge installations, factories, warehouses and offices, some still in use, others empty. Particularly in the post-industrial sites, often social questions and signs of foreclosure dominate both the political and the physical landscape. Cities make redevelopment plans, although often it is quite difficult to find the right program and approach in order to revitalise such areas as the local economy.</p> <p>The aim of education in the Methods & Analysis MSc1 studio is to merge analysis and design extensively, in order to face difficult architectural, spatial, technological, social and political questions that dominate these (post-)industrial landscapes.</p>	
Course Contents	<p>From Otto Wagner to Aldo Rossi and Robert Venturi, architects have always developed new approaches and tools to react to changing urban conditions. The studio Ways of Doing wants to position itself within this architectural tradition and asks: Which toolbox can we cultivate to confront new urban ecologies like (post-)industrial landscapes? Through particular assignments, it aims to develop and assess distinct methods that allow for innovative way of analysis, architectural design, and spatial intervention in the challenging reality of (post-)industrial landscapes in various cities in The Netherlands and Belgium. Each semester another site is chosen to be investigated. These (post-)industrial areas often are dominated by characteristic constructions and buildings: huge installations, factories, warehouses and offices, some still in use, others empty. Particularly in the post-industrial sites, often social questions and signs of foreclosure dominate both the political and the physical landscape. Cities make redevelopment plans, although often it is quite difficult to find the right program and approach in order to revitalise such areas as the local economy. Students investigate the spatial, social and political situation by studying particular themes, like the atmosphere, the infrastructure, public space, as well as by using specific methods of analysis and design, like soft-mapping and drawing sections, or developing narratives or spatial poems. Analysis, in this particular perspective, is extensively part of the design-approach that the student will develop during the studio. Part of this approach also is the choice of location, program and aim of a spatial intervention in the area of study.</p>	
Study Goals	<p>Upon completion of the Master 1, 2, 3 & 4 studio trajectory the student:</p> <ul style="list-style-type: none"> - Has developed the skills in architectural design satisfying both aesthetic and technical / functional requirements. During the trajectory the complexity of the architectural design increases leading to a level fit for architectural practise. - During this trajectory skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology and human sciences. - Additionally, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and societies needs, including environmental aspects. This includes moral decision and argumentation skills regarding architectural ethics, especially when addressing social, political, environmental and technological issues. - During Master 1, 2, 3 & 4 process skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing. - Together with the training with regard to aspects of building technology, during the Master 1, 2, 3 & 4 process skills are acquired to incorporate an understanding of the design process with regard to structural design, materialisation of buildings, comfort and climate control. 	
Education Method	<p>The msc1 studio Ways of Doing takes up the task to investigate new tools and methods to address the challenging paradox of historical presence on the one hand, and large new developments on the other. The studio does so by constantly shifting to different methods, in order to look at the site and the research question from various perspectives, which can vary from strict architectural towards technological, and from spatial to political perspectives.</p> <p>During the course, different methods will be applied: from fieldwork to investigations by means of narrative or sections; from material explorations to the development of sequences of use; by focussing on building-technological aspects or on atmospheric aspects of spaces; from focusing on basic architectural elements such as floor, wall and roof, to articulating structural aspects like repetition and hierarchy.</p> <p>Students will start to work in small groups on distinct research themes the result of these investigation is understood as the share knowledge base that is developed in the studio. Based on these insights, the students either continue to work in groups or work individually on the proposal of a spatial intervention in a location of choice.</p>	
Course Relations	<p>This design studio is accompanied by two theoretical seminars, Architectural Tools (AR1MET030) and The Roles of the Architect (AR1MET040) that respectively investigate the instruments used by architects to develop their plans and ideas, and how these affect the very outcome of the design-process, and explore the various roles architects can take within contemporary practices and society.</p>	
Assessment	<p>The course is assessed through a mid-term review and a final presentation of the project. However, as for this course the process is as important as the final design, the students need to present not only the project, but also substantial intermediate findings. The tutors will assess, during the mid-term review and the final presentation the way students understand and apply different methods offered. Particular attention will be given to the question how the student succeeds in using methods as offered in the studio, and how the student is able to formulate particular design hypothesis based on these exercises. The consistency of the project on a methodological, architectural and technical level is crucial for the final assessment. For the mid-term review as well as for the final presentation, external critics will be invited.</p>	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1TWF010	The Why Factory Design Studio: Design lab I	12
Responsible Instructor	Prof.ir. W.G.M. Maas	
Responsible Instructor	F.M. Madrazo Salazar	
Course Coordinator	J. Arpa Fernandez	
Instructor	F.M. Madrazo Salazar	
Instructor	Prof.ir. W.G.M. Maas	
Co-responsible for assignments	S. Gargaretas	
Contact Hours / Week x/x/x/x	6 hours per week	
Education Period	1 2	
Start Education	1	
Exam Period	none	
Course Language	English	
Course Contents	<p>This course is a MSc1 studio, and is organized as a think tank. Studios at The Why Factory are content-driven design and research studios with a practical and theoretical scope. MSc1 studios are research labs and platforms that aim to analyse, theorize and construct future cities. They conduct a variety of investigations within the given world, and produce future scenarios beyond it: from universal to specific and global to local.</p> <p>MSc1 studios start with a specific brief and a statement on the future of urban life. Based on the brief, future scenarios will be developed leading to visionary, city-related designs.</p> <p>Students develop their specific approach to the brief and define the necessary scientific research. Calculations, simulations or modelling to support the studio work are elaborated in a parallel seminar: the Future Models seminar.</p> <p>The results of the research lead to a design project with consequent logic, convincing argumentation and illustrative and fantastic visuals.</p>	
Study Goals	<p>Upon completion of the Master 1, 2, 3 & 4 studio trajectory, the student:</p> <ul style="list-style-type: none"> - Has developed the necessary skills in architectural design that satisfy programmatic, aesthetic and technical requirements. <p>During the Masters trajectory, the complexity of the architectural design increases, leading to the level required for professional practice.</p> <ul style="list-style-type: none"> - During this period, skills are acquired to increasingly incorporate an understanding of design processes, architectural history and theory, art, technology and human sciences. - Additionally, skills are acquired to incorporate into design an understanding of the relation between buildings, spaces and society's needs, including environmental aspects. - During Master 1, 2, 3 & 4, skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing. - Together with the building technology training, during Master 1, 2, 3 & 4 skills are acquired to incorporate an understanding of the design process with regard to structural design, materialisation of buildings, comfort and climate control. 	
Education Method	Atelier: 150 hours Self study: 270 hours	
Course Relations	<p>MSc1 studios are linked to two other courses of The Why Factory: the Actualities Workshop (AR1TWF020) and the Future Models seminar (AR1TWF030).</p> <p>Students who join the MSc1 design studio AR1TWF010 as core course must join AR1TWF020 and AR1TWF030 as well.</p> <p>Students who join the design studio AR1TWF010 as an optional MSc2 studio are not obliged to join AR1TWF020 and AR1TWF030. However, we advise students to join the Future Models seminar AR1TWF030, as it may be helpful for the content of the design studio.</p>	
Assessment	Presentation	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

Semester 3, Ae

AR3A160	Lecture Series Research Methods	6
Responsible Instructor	Dr.ir. P.J. Teerds	
Responsible Instructor	Dr.ir. K.M. Havik	
Course Coordinator	Dr.ir. P.J. Teerds	
Instructor	Dipl.ing. R.A. Gorny	
Instructor	M.F. Berkers	
Contact Hours / Week x/x/x/x	28 hours per quarter	
Education Period	1 3	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	General Master 2 level of knowledge.	
Course Contents	<p>The lecture series will allow MSc 3 students from all the departments and chairs of our Faculty to reflect on and explore a series of methodological approaches, which should strengthen their architectural positions in the graduation studio, towards the conclusion of their formative process and the consequent obtainment of the corresponding degree.</p>	
Study Goals	<p>Students involved in this course are expected to operate at a final year Masters level, meaning they are responsible for performing critically within the series of concepts presented in the course; as well as individually fulfilling course requirements such as being acknowledged with the basics of scientific writing, formulating hypotheses and investigating at a level equivalent to their standing within the curricular track.</p> <p>This lecture series will address scientific integrity to make sure that architecture students develop the necessary skills for integer research approaches while being aware of the societal, political, physical and environmental impacts their research and design work has.</p> <p>The lecture series aims to:</p> <ul style="list-style-type: none"> - Take advantage of the magnitude and diversity of the series. The line-up of lecturers, paired to the differences among the academic tracks followed by students from several chairs and departments, should substantially enhance each discussion, and promote creative approaches to each of the topics discussed. - Endow the students with clear knowledge of the heuristic nature of their work. The central thesis of the course is that all architectural activity is an exploration within identifiable disciplinary fields of experimentation, based on equally identifiable epistememes. Awareness of that explorative/cognitive capacity of architecture we sustain is a crucial element in the formation of an architect. - Present the students with a selection of relevant and progressive architectural methodologies and analytical strategies that are currently being used and discussed within the A+BE academic community and in other outstanding educational institutions. - Invite students to become engaged in these discussions actively, in order for their graduation processes to constitute real contributions to the professional debate that feeds our Faculty. It is expected that, with the information provided in this course, each graduation process aims to produce additional architectural knowledge in the face of established and ongoing research programs. - Focus on moral sensibility, analysis, creativity, judgment, and skills regarding architectural ethics when developing specific expertise. 	
Education Method	<p>The course comprises two, parallel activities: A series of lectures and the preparation of a position paper. The lecture series is made up of seven sessions. Six have defined topics, the first is introductory. Each lecture session includes a 30+ min. presentation by a lecturer, a 30+ min presentation by a group of students, and a 30+ minute series of Q&A, presented to both lecturer and students. Each guest lecturer is responsible for submitting on the fore a reference text for students to prepare the session, and a paper of her authorship that exposes, summarizes or complements her presentation. Both documents will be made available to the whole group of students with sufficient anticipation.</p> <p>A group of students will be responsible for preparing each lecture. These groups will be formed during the course intro, and will divide themselves into a subgroup in charge of presenting the topic, and other subgroups in charge of preparing a series of debate topics and questions, for the closing discussion.</p> <p>The whole group of students in charge of preparing each session will participate in a workshop, in which they will be guided in the development of their presentation and the construction of different positions within the chosen topic, looking forward to the debate. These workshops will take place on Monday mornings, and will be tutored by the coordinators of the lecture series and/or staff from the chair of Methods and Analysis.</p> <p>Before entering each lecture session, the group of presenting/debating students will hand in a paper of their authorship (2000 words, aprox.) that exposes, summarizes or complements their presentation, the images that accompany their talk, the questions and debate topics developed to feed the debate, and any other addenda they consider necessary to support their understanding of the topic.</p>	
Literature and Study Materials	A reader will be distributed via Blackboard/Brightspace	
Assessment	<p>Each student is responsible to elaborate on her own reflections regarding the course, the debates, the literature that will be provided and suggested, and her own graduation process, by producing an individual position paper (aprox. 2000 2500 words), following scientific standards of writing and structuring her topics (acknowledging a state of the art for a particular discussion, for example) towards the construction of a methodological apparatus in affinity with her own intentions and inclinations.</p> <p>Upon request, specific tutoring/workshops for this second component are available, in the same group format utilized for the preparation of the sessions.</p> <p>In order to attend one of these tutorials, interested students must submit a full draft of their essay, including their name, student number and current chair/graduation studio. The submission deadline for this draft will be specified at the beginning of the period.</p> <p>The course coordination will group the drafts and submit them to available tutors, by topic affinity. These tutors will read the drafts and subsequently organize a workshop with small groups of students. The aim of these workshops are to clarify doubts, elaborate on formal and stylistic concepts, and contribute thematically to the development of the final versions of the papers.</p> <p>The fact that extra tutoring is available does not mean that the students are not encouraged to also seek additional support from their teachers in the other courses that constitute the graduation track.</p> <p>Position papers are expected to be approximately 2000 2500 words in length, and should comply with academic and scientific standards in terms of form and style.</p> <p>The fundamental aim of this assignment is to enable students to formulate a sound and consistent architectural position, in the</p>	

face of the broader discussions presented as a partial state of the art of professional discussion, both within our Faculty and in contemporary architecture culture.

Articulating a position requires knowledge and understanding of a diverse array of postures, which are carefully considered in response to the problems of our time. Getting acquainted with diverse sources, authors and architectural examples; articulating the information contained in these sources; abstracting and operating with the useful and/or relevant ideas they represent; and (hopefully) further elaborating them into progressive architectural models; are all goals of this exercise.

It is assumed that the reflections generated during the course, and the resulting position paper, are active components of the broader exploration that is the graduation project. Research, reflection, discursive elaboration and historical contextualization are fundamental parts of a complete architectural intervention, meant to perform in site- and cultural-specific conditions, but also in the broader intellectual framework that is the architecture of our time.

In this sense, reflections should elaborate on the central concepts, methods and tools employed in the development of the architectural explorations leading to the Masters degree, at a level that transcends the simple description of steps taken in the elaboration of a project.

Cases of plagiarism will be dealt with according to standard procedures established by the corresponding authorities within the University.

Special Information

Each period will include a normal deadline for the presentation of the final position papers. Papers handed in within this deadline will be graded normally.

An extra hand-in moment will be offered for late papers, around the middle of the following academic period. Papers presented for this extra hand-in moment will only be evaluated in terms of pass (6,0/10,0) and fail (5,0/10,0 and under).

Remarks

Position papers will be evaluated on the following items:

- Has a question been clearly defined?
- Has the question been developed beyond its initial formulation?
- Does the paper acknowledge a state of the art, regarding this question?
- Has a position been taken, in relation to this state of the art?
- Is the paper coherent/concise?
- Does the paper follow a clear methodology?
- Are the sources pertinent, and well used?
- Is the language adequate?

Period of Education

Lectures take place during the first quarter of the period.

The second quarter of the period is used for the production of final position papers.

Individualized tutoring is offered upon request, to students who require extra help in the process of writing their papers, during this second quarter.

Course evaluation

The course will be graded on the basis of a final, position paper, worth 100% of the grade assignable to the Lecture Series. This position paper is expected to range between 2000-2500 words, and must be submitted before a specified deadline.

Only papers accepted and graded with a mark above 5,0/10,0 will be eligible for re-takes or further corrections.

Close attention must be paid to the fact that a passing grade in this course is necessary to apply for a Studio P4 presentation. Please note that the deadline for the presentation of these papers is indicated since the very beginning of the semester. This should allow you to plan the development of your essay without interfering with other deadlines. Conflicts with other courses should be negotiated with the Board of Examiners.

AR3AE013	Architectural Engineering Graduation Studio Research	9
Responsible Instructor	Prof.ir. M.F. Asselbergs	
Course Coordinator	Ir. M.J. Smit	
Contact Hours / Week x/x/x/x	X/X/X/X	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Course Contents	In the Architectural Engineering graduation studio there are two specializations: Intecture and Robotic Building.	
Study Goals	<p>INTECTURE Each student focuses on his/her own technical research topic, related to an overall design question (see AR3AE015). For this technical research students are assisted by technical research tutors with specific knowledge in the technical/thematic field of interest.</p> <p>ROBOTIC BUILDING Students focus on technical research topics related to D2RP and D2RO (see AR3AE015). Research tutors with specific knowledge in the technical/thematic field of D2RP&O assist students during 2 hands on workshops.</p>	
Education Method	<p>Students are able to address a technical research topic that is relevant for respective architectural practice.</p> <ul style="list-style-type: none"> - Students are able to set up an accurate research framework (problem definition, objectives, research questions, methods, planning etc.). - Students are able to translate research insights into design tools and methods suited for architects. - Students are able to assign both project specific as well as generic meaning to their technical research. 	
Assessment	<p>INTECTURE Students will discuss progress with research teachers once every one or two weeks. Students will discuss the project specific relevance with their main (architecture) teacher every week.</p> <p>ROBOTIC BUILDING Students will participate in 2 workshops.</p>	
Special Information	The insights and design tools of the implemented technical research are reflected in a research paper (Intecture) and report , prototypes, and presentation (Robotic Building), respectively.	
Remarks	The maximum marking period is 10 work days.	
Period of Education	<p>For more information on AE specializations please contact:</p> <p>INTECTURE Mo Smit - m.j.smit@tudelft.nl</p> <p>ROBOTIC BUILDING Henriette Bier - h.h.bier@tudelft.nl</p>	
Course evaluation	Semester	
	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR3AE015	Architectural Engineering Graduation Studio	15
Responsible Instructor	Prof.ir. M.F. Asselbergs	
Course Coordinator	Ir. M.J. Smit	
Contact Hours / Week x/x/x/x	X/X/X/X	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Course Contents	INTECTURE	
	Climate change and economic turmoil face young architects with new challenges; the need for carbon neutral buildings, the lack of affordable housing, the transformation of the existing building stock and infrastructure, the rising water level and so on. How can we optimize our living environment whilst dealing with those challenges? How can we integrate innovative technical solutions in our architectural designs?	
	In the Intecture studio every student defines a technical challenge in order to make an innovative and relevant architectural design within one of the selected case study contexts. The two main directions of Intecture are Make (digital manufacturing, prototyping, low- and high tech craftsmanship) and Flow (circularity of energy, water, waste and materials), which both relate to very diverse research and design questions. For example:	
	<ul style="list-style-type: none"> - How to use digital manufacturing tools in the design of buildings? - How to develop new building systems and methods for biobased materials? - How to design demountable buildings for a circular economy? - How to integrate energy production in our built environment? - How to (re)design the existing building stock in a sustainable way? - How to responsibly integrate infrastructure in our built environment? - How to integrate water, waste- and food flows in our architectural designs? - How to design healthy living conditions (f.e. dwellings) in a polluted environment? - And so on 	
Study Goals	AE graduating students achieve the following study goals:	
	<ul style="list-style-type: none"> - Students are able to set up an accurate project definition (problem definition, objectives, research questions, methods, planning, etc.). - Students are able to incorporate a relevant technical research topic in their overall design question - Students are able to incorporate specific technical knowledge in a preliminary design. - Students develop skills in architectural design satisfying aesthetic as well as technical and functional requirements. - Students develop insights in and knowledge of the design process with regard to methods for research and design. 	
	During the master 3 & 4 the complexity of the architectural design increases, leading to an optimal level required for architectural practice.	
	The graduation report demonstrates the students ability to employ moral sensibility, analysis, creativity, judgment, decision and argumentation skills regarding architectural ethics and his/her future role as architect. The individual graduation report should not only contain an elaboration regarding the graduation projects societal and disciplinary relevance, but has to also address design ethics and the way in which intercultural issues were addressed in the graduation project.	
Education Method	Students will be guided by an architecture and a research teacher, whom they will meet every week to discuss the progress of their projects. The studio also organizes collective thematic meetings and presentations to discuss and reflect on each others projects.	
Assessment	Examination takes place through P1 (midterm) and P2 (final) presentations and a graduation plan (for details see the Graduation Manual). After successfully finishing the MSc 3 studio, the student will enroll in the MSc 4 studio devoted to the elaboration of the MSc 3 design project.	
Special Information	The maximum marking period is 10 work days.	
Remarks	INTECTURE	
	Mo Smit - m.j.smit@tudelft.nl	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

Semester 4, Ae

AR4AE010	Architectural Engineering Graduation Studio	30
Responsible Instructor	Prof.ir. M.F. Asselbergs	
Course Coordinator	Ir. M.J. Smit	
Contact Hours / Week x/x/x/x	X/X/X/X	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Course Contents	<p>INTECTURE</p> <p>Climate change and economic turmoil face young architects with new challenges; the need for carbon neutral buildings, the lack of affordable housing, the transformation of the existing building stock and infrastructure, the rising water level and so on. How can we optimize our living environment whilst dealing with those challenges? How can we integrate innovative technical solutions in our architectural designs?</p> <p>In the Intecture studio every student defines a technical challenge in order to make an innovative and relevant architectural design within one of the selected case study contexts. The two main directions of Intecture are Make (digital manufacturing, prototyping, low- and high tech craftsmanship) and Flow (circularity of energy, water, waste and resources), which both relate to very diverse research and design questions. For example:</p> <ul style="list-style-type: none"> - How to use digital manufacturing tools in the design of buildings? - How to develop new building systems and methods for biobased materials? - How to design demountable buildings for a circular economy? - How to integrate energy production in our built environment? - How to (re)design the existing building stock in a sustainable way? - How to responsibly integrate infrastructure in our built environment? - How to integrate water, waste- and food flows in our architectural designs? - How to design healthy living conditions (f.e. dwellings) in a polluted environment? - And so on 	
Study Goals	<p>AE graduating students achieve the following study goals:</p> <ul style="list-style-type: none"> - Students are able to incorporate the specific technical knowledge and design tools derived from their technical research (AR3AE013) in an architectural design. - Students develop skills in architectural design satisfying aesthetic as well as technical and functional requirements. - Students develop insights in and knowledge of the design process with regard to methods for research and design. - Students are able to reflect upon their research and design process and their position as an architect. - Students are able to develop a convincing narrative / presentation for their design proposal. <p>During the master 3 & 4 the complexity of the architectural design increases, leading to an optimal level required for architectural practice.</p> <p>The graduation report demonstrates the students ability to employ moral sensibility, analysis, creativity, judgment, decision and argumentation skills regarding Architectural ethics and his/her future role as architect. The individual graduation report should not only contain an elaboration regarding the graduation projects societal and disciplinary relevance, but has to also address design ethics and the way in which intercultural issues were addressed in the graduation project.</p>	
Education Method	Students will be guided by an architecture, building technology (added to the team starting from MSc4) and research teacher to discuss the progress of their project. The studio also organizes collective thematic meetings to discuss and reflect on each others projects.	
Assessment	Examination takes place through P3-, P4- and P5-presentations and a written Reflection (see Graduation Manual).	
Special Information	The maximum marking period is 10 work days.	
Remarks	INTECTURE Mo Smit - m.j.smit@tudelft.nl	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

A&PB

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

MSc 1 Architecture & Public Building

AR1A060	Delft Lectures on Architectural Design	3
Responsible Instructor	Dr.ir. S. Komossa	
Course Coordinator	Dr.ir. E.H. Gramsbergen	
Instructor	Dr.ir. E.H. Gramsbergen	
Instructor	Dr.ir. P.J. Teerds	
Instructor	Ir. L.G.K. Spoormans	
Instructor	Dr.ir. B.M. Jurgenhake	
Instructor	Ir. M.J. Smit	
Contact Hours / Week x/x/x/x	2 hours per week	
Education Period	1 3	
Start Education	1 3	
Exam Period	1 2 3 4	
Course Language	English	
Course Contents	<p>The Delft Lectures on Architecture Design highlights current issues of the architecture discipline against the background of the larger societal conditions that have an inevitable impact on the practice of design. Contemporary positions in architecture practice and theory will be discussed. Full professors, associate professors and researchers of the Delft Faculty of Architecture will address key contemporary topics, and investigate historical models and theoretical arguments while discussing the latest architecture projects as well as seminal cases.</p>	
Study Goals	<p>Key questions concern: - where do architects stand and what can they do? - which positions and practices are developed by architects? - what strategies and approaches were and are relevant?</p> <p>After completion of the course: Building on the architectural design courses of the Bachelor, the student has gained knowledge of relevant issues of the discipline of architectural design, practice and its body of knowledge, including the main theoretical concepts and models. The student is able to reflect critically on ethical positions taken by lecturers and expressed by their practises.</p>	
Education Method	<p>The student: - Has appropriate knowledge of the main issues of the discipline of architectural design, practice and its body of knowledge, including the main theoretical concepts and models. - Is aware of the larger historical development of the discipline of architectural design in relation to the main theoretical concepts and models deployed of architecture, art and technology, their application in specific cases as presented in the lecture series addressing current issues of architectural practice and society. - Is able to interpret the architectural design production, both historically and current, in terms of the concepts and models of design as discussed in the lecture series; this includes the larger context of the manifold relations between architecture, the city and society and the relations between design concepts, building production and materialization.</p>	
Assessment	<p>Double lectures (2 x 45 minutes) by full professors, associate professors and researchers of the department of Architecture and other faculty members. Lectures are concentrated in the first half of the semester, during 7 weeks. Generally, the double lectures start with introducing the 'issue', after which the 'architectural positions' are discussed. The lecture coordinators are present to introduce the speakers and the topic, and to moderate questions from the students.</p>	
Special Information	<p>The format of the examination is a digital exam with a duration of three hours, which means the examination is taken place in a specifically equipped examination hall on the campus. The maximum marking period is 10 work days.</p>	
Period of Education	Quarter	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1A065	Delft Lectures on Architectural History	3
Responsible Instructor	Prof.dr.ing. C.M. Hein	
Responsible Instructor	Dr. H.D. van Bergeijk	
Course Coordinator	Dr. H.D. van Bergeijk	
Contact Hours / Week x/x/x/x	X/X/X/X	
Education Period	2 4	
Start Education	2 4	
Exam Period	2 3 4 5	
Course Language	English	
Course Contents	This course provides a deepening of a particular part of the knowledge that the student has gained in the earlier stages of his curriculum. It consists of a lecture series of Capita Selecta dealing with the modern architectural production from 1850 till about 1940. This year the course will focus especially on the birth of modernism in the periode from the beginning of World War I till the collapse of the stock market in 1929. De Stijl-artists and the Bauhaus will be the core of the course but also figures like Dudok, Stam and others will receive due attention. We will try to explore how the abolition of history led to a new concept of society and the underlying concepts of civitas. A belief in the machine produced also a new ethics that will have an influence on the development of society in the 20th and 21st century.	
Study Goals	The student - has acquired a sufficient framework to place and value different contributions to the history of the discipline and society in general. - has gained insights on a specific theme and has deepened his knowledge - has an understanding of some of the tools of the architect from a historical point of view. - knows how to apply certain terms and is critical to their meaning - can relate to the work of architectural historians - is capable of giving a motivated and well-argued answer to the questions - has an idea of the importance of the ethical position of the architect and critic in relation to certain important issues	
Education Method	Lectures Readings	
Literature and Study Materials	All students should read: - Michael White, De Stijl and Dutch Modernism (Manchester University Press).	
Assessment	Further readings will, if necessary, be provided through Blackboard.	
Special Information	Exam with essay questions in which the students exposes his knowledge. The student can choose from the questions. The answer to an essay question should be given in about 500 words. The knowledge that the students shows should be related to his readings and the ideas that he has formed during the course. Students are expected to challenge themselves.	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1A075	Delft Seminars on Building Technology	6
Responsible Instructor	Prof.ir. M.F. Asselbergs	
Responsible Instructor	Ir. B. Gremmen	
Course Coordinator	Ir. B. Gremmen	
Contact Hours / Week x/x/x/x	40 hours per quarter	
Education Period	1 3	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	We expect that you followed the bachelor in Delft or a similar education elsewhere in the world. You have gained knowledge and practices in the next topics:	
	<ol style="list-style-type: none"> 1. constructional and structural detailing (1:20/5/2/1) 2. Structures/constructions in steel, wood and concrete 3. Climate issues, ventilation, heating and cooling 	
	Literature list for International students, master Architecture We take the content of these books as read before participating.	
	<p>Components and connections Author: Meijs, Maarten Contributor: Knaack, Ulrich Publisher: Birkhäuser Publish date: 2009 Document type: book ISBN: 978-3-7643-8669-6 Subtitle: principles of construction Classification: UJA / Building structures: general Chapters all</p>	
	<p>Building construction illustrated Author Ching, Francis D.K Publisher Wiley Publish date 2008 Document type book ISBN 978-0-470-08781-7 Edition 4th ed. Chapters all</p>	
	<p>Structures Author Schodek, Daniel L. Publisher Pearson/Prentice Hall Publish date 2008 Document type book ISBN 0-13-178939-2 Edition 6th ed. Chapters 1,2,3,4,6,7,9,10,13,14,15,16,</p>	
	<p>Climate and Architecture Author Dahl, Torben Publisher Routledge Publish date 2010 Document type book ISBN 978-0-415-56308-6 Edition 1th ed. Chapters all</p>	
	<p>Building Physics Author Linden, A.C. van der Publisher Thiemeleuhenhoff Publish date 2013 Document type book ISBN 978-9006-95155-4 Edition 1th ed Chapters all</p>	
Course Contents	In this course you will make a new technical design for a selected fragment of a case study building or a fragment. In two posters (A0) you will present your new design in technical drawings 1:20 and 1:5/1. Next you will explain the structural design, climate design and facade design in informative diagrams, illustrated with photographs and sketches.	
Study Goals	The student:	
	<ol style="list-style-type: none"> 1. Is able to use research skills in technological design issues and is able to formulate an accurate guiding theme or position, that guides the design process 2. Is able to recognize technical design problems and is able to select -in a substantiate manner- the best solution from a series of (self) formulated possible design alternatives 3. Is able to interpret and integrate the aspects of structure design, construction (facade) design and climate design in a design of a building 4. Is able to provide innovative design solutions especially with regard to the use of energy and providing comfort in building design 5. Is capable of drawing and presenting architectural and technical aspects of a design in a coherent and clear manner 	
Education Method	work groups (seminars)	
Books	<ul style="list-style-type: none"> - Millais, M., 'Building structures, a conceptual approach', London, 1999 - Jones, B., Peter, 'Modern Architecture Through Case Studies', Oxford, 2002 - Daniels, 'Advanced Building Systems, a technical guide for architects and engineers', Basel, 2003 - Frampton, 'Studies in Tectonic Cultures', The MIT Press, 1995 - Ronner, Kolliker, Rysler, 'Baustuktur', Basel, 1995 - Schittich, C., 'In detail: building skins: concepts, layers, materials Basel', Basel, 2001 - Watts, A., 'Modern Construction Handbook', Wien, 2001 - Watts, A., 'Modern Construction Facades', Wien, 2005 	

<p>Assessment</p>	<p>- Bachman, L.R., 'Integrated Buildings', Hoboken Wiley, 2003 - Cook, P., Primer, 'Emancipation of Structure', London, 1996 - Deplazes, D., 'Architektur Konstruieren', Basel, 2005 - Addis, B., 'Building, 3000 years of Design Engineering and Construction', London, 2007</p> <p>The examination will take place in the form of a poster (pin-up) presentation in the studio spaces. Examination will only take place during the final presentations of the course. The date of the final presentation will be announced in the seminar handout. You will receive a mark between 1 and 10 with the following meaning:</p> <p>10 Excellent 9 Very good 8 Good 7 Quite sufficient work 6 Sufficient</p> <p>5,5 Almost sufficient, can be corrected with a repair task without tutoring. Only minor deficiencies can be fixed as a repair task, decided by the tutor. Must be finished within two weeks after the final presentation. Second repair is not possible. Your work will be marked with an V.If the repair does not higher the grade up to V you will have to redo the course.</p> <p>in the case of a delayed evaluation (by request of the study counsellar), the figure will be a maximum of 6.</p> <p>5 and lower, Unsufficient, you have to redo the course next semester</p> <p>NV in case you did not finish the course</p>
<p>Special Information</p> <p>Period of Education</p> <p>Concept Schedule</p>	<p>The maximum marking period is 10 work days.</p> <p>Quarter</p> <p>Q1: In the weeks 1.1 up to and including week 1.6 of the 1st quarter you need to reserve in time Q3: In the weeks 3.1 up to and including week 3.5 of the 3rd quarter you need to reserve in time</p> <p>Tutoring: 40 hours Independent study: 128 hours</p> <p>Seminars will take place on Tuesdays and Fridays, mornings or afternoon. Final presentation will take place on the Friday of the week 1.6 (Q1) and 3.5 (Q3)</p>
<p>Leerstoel</p> <p>Course evaluation</p>	<p>Architectural Engineering</p> <p>For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/</p>

AR1AP011	MSc1 Public Building Design Studio	12
Responsible Instructor	Dr.ir. M.G.H. Schoonderbeek	
Responsible Instructor	Dr.ir. S. Komossa	
Course Coordinator	S. Milani	
Course Coordinator	Ir. A.M.F. van Dam	
Instructor	Ir. F. Geerts	
Instructor	Dr.ir. S. Komossa	
Instructor	Ir. M.J. de Haas	
Instructor	Ir. A.M.F. van Dam	
Instructor	Dr.ir. M.G.H. Schoonderbeek	
Instructor	S. Lee	
Instructor	O.R.G. Rommens	
Instructor	A.S. Alkan	
Instructor	N.E.A.I. Deboutte	
Instructor	N. Marzot	
Instructor	S. Milani	
Contact Hours / Week x/x/x/x	112 hours per semester	
Education Period	1 2	
Start Education	1	
Exam Period	Different, to be announced	
Course Language	English	
Course Contents	<p>The memories architecture embodies do not remain singular, static and coherent. They are edited, revised, erased, spliced, and renewed. They are also often destroyed by accident or intentionally and repurposed in order to meet the contemporary needs. In the process, certain privileged memories pass the tests of time and events, remain conscious, and influence subsequent generations. Others fall through the cracks and disappear. In order to fill such cracks, new memories are constructed and continue the process.</p> <p>As the cycles of construction, destruction and reconstruction of buildings and cities, and the memories attached to them accelerate, not only existing segments of culture fall through the cracks but also new ones emerge more frequently and in larger scope. We also face the increasing number of disused, forgotten, abandoned and destroyed buildings in large swaths of industrialized nations and their urban landscapes. We inherit decomposing memories from the recent past.</p> <p>The A-PBs MSc. 1 studio discovers and reassesses the traces of architectural manifestation and urban configuration. We offer distinctive design groups that are set in various cities with distinctive approaches and trajectories. Each studio group focuses on both the given city's invisible facets in order to unveil the dimensions beyond the obvious and the ordinary. Each studio pays special attention to the contemporary position of architecture as a form-giver of memories.</p> <p>The A-PBs design courses focus on architectural and urban sites of other spatial conditions emerge have hardly been explored within the contemporary architectural discourse. The studios investigate into the characteristics of contemporary conditions and the larger, urban scale, with a special emphasis on the city as culture. The studios therefore adopt a broad view towards the notion of architectural design that emphasizes process-oriented investigations. This approach stresses the importance of projecting the design process into tectonic, spatial and semiotic constructs. We see them crucial to the development of an architectural work. The studio focuses on architectural design that uncovers the invisible and unveils the dimensions beyond the ordinary and the obvious.</p> <p>Analogue and digital tools and techniques of conception, documentation, notation and mapping provide a way to read and register urban fields and investigate them through a specific apparatus. Each city-group will focus on the specific characteristics of the urban conditions and interstices in order to understand each city's spatial disposition and approach innovative and experimental architectural work.</p> <p>The cities of the design groups will be announced shortly before the enrollment period starts. Each enrolled student will have an opportunity to choose the group of his/her preference.</p> <p>Each city-group requires an excursion abroad. The excursion may cost around 400 or more per person for transport, lodging and other expenses depending on the location.</p>	
Study Goals	<p>Develop effective tools and techniques for implementing a design position.</p> <p>Analyze, evaluate and pursue a range of technical, programmatic, theoretical, historical and professional implications toward the final design proposal.</p> <p>Integrate and express theoretical knowledge and practical skills into design process.</p> <p>Develop, exercise and improve a high level of independence during design process and production.</p> <p>Reflect on the work and learn from peers in consideration of architecture as discourse.</p> <p>Position the design work in relation to history, culture, conventions and theoretical context.</p> <p>Communicate and defend complex design ideas through verbal, visual and written media to both specialist and non-specialist audiences.</p>	
Education Method	<p>Pre-design research Site visit and field investigation Formal exercises in drawings and models Materials exercises Presentation and critique</p>	
Assessment	<p>Mid-term review (week 2.3) Final review (week 2.10)</p> <p>The actual review weeks may be subject to change.</p>	
Special Information	The studio work may include and be supplemented by charrettes, informal/intermediate reviews, as well as by supplementary	

	lectures and workshops.
	Shortly prior to the beginning of the semester, each student will have an opportunity to choose and sign up for one of the city-groups. The student must select and express the first, second and third preferences. When the preferences are missing, the student will be randomly assigned to a city-group.
	After the city-studio selection process, each student will also be given an opportunity to switch places 1:1, if necessary and at the discretion of the studio instructors.
	During the first half of the semester, until the midterm review, the students will work in groups.
	The maximum marking period is 10 work days.
	For more information, contact: pb-edu-bk@tudelft.nl
Period of Education	Semester
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/

AR1AP030	Seminar Architectural Studies	3
Responsible Instructor	Dr.ir. M.G.H. Schoonderbeek	
Responsible Instructor	Dr.ir. S. Komossa	
Course Coordinator	S. Milani	
Course Coordinator	Ir. A.M.F. van Dam	
Instructor	Ir. F. Geerts	
Instructor	Dr.ir. S. Komossa	
Instructor	Ir. A.M.F. van Dam	
Instructor	Dr.ir. M.G.H. Schoonderbeek	
Instructor	A.S. Alkan	
Instructor	N. Marzot	
Instructor	S. Milani	
Contact Hours / Week x/x/x/x	3,5 hours per week for 8 weeks	
Education Period	1	
Start Education	1	
Exam Period	none	
Course Language	English	
Course Contents	The MSc. 1 seminar "Architectural Studies" surveys seminal works of architecture, buildings and projects, in relation to the city. The course explores the buildings and projects in the context of relevant societal, historical and ideological milieus. Students will research on ideas about the city, architecture and the public domain by analyzing a series of buildings and projects that have served as a lens to the epochal tendencies of architecture and its context.	
Study Goals	The particular themes of the seminar arise from a series of projects that are documented, studied, presented and discussed by subgroups of students in class. The students will elaborate on the projects in the midterm paper (at the end of the first quarter period) in function of the themes established by each student in response to the class discussion. Gain specific knowledge in the field of theories in architecture, technologies and human sciences, which enable him/her to link theories and design skills within the design studio in an adequate way. Understand how people perceive spaces, their positioning, proportions and materialisation and the actual use of buildings, spaces and spaces in-between them. Understand how a design brief can be related to the actual needs of society at a given moment in history and by doing so, understanding the societal relevance of architecture.	
Education Method	Seminars: 28 hours Independent study: 56 hours	
Literature and Study Materials	Architectural material as primary source: drawings etc. to be gathered by the students (a list of projects will be provided) Students are required to dig up as much material as possible from the library and for example the Nai archive, and online resources. A selection of additional reading materials will be provided by the instructors	
Assessment	Each instructor will distribute a definitive literature list at the beginning of the course. The submissions at the end of the seminar quarter consist of a term paper and drawings. The course grade will be based on the submissions. A term paper (due date TBA) reports the findings on one of the projects from the list provided by the instructor (75%). Weekly class participation and presentations on the projects and discussion of the readings is an integral part of the course (25%). The term paper will be discussed individually through abstract proposal. It will concern one of the projects discussed in the seminar classes. Students will also develop 4 conceptual drawings of one of the projects, based on the themes assigned by the instructor. Graphic content as well as notes and sources for both text (introduction and conclusion) and image should be included as needed.	
Special Information	The maximum marking period is 10 work days. For more information, contact: pb-edu-bk@tudelft.nl	
Period of Education	Quarter	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1AP040	Seminar Architectural Reflections	3
Responsible Instructor	Dr.ir. M.G.H. Schoonderbeek	
Responsible Instructor	Dr.ir. S. Komossa	
Course Coordinator	S. Milani	
Course Coordinator	Ir. A.M.F. van Dam	
Instructor	Ir. F. Geerts	
Instructor	Dr.ir. S. Komossa	
Instructor	Ir. A.M.F. van Dam	
Instructor	Dr.ir. M.G.H. Schoonderbeek	
Instructor	A.S. Alkan	
Instructor	N. Marzot	
Instructor	S. Milani	
Contact Hours / Week x/x/x/x	3,5 hours per week for 8 weeks	
Education Period	1	
Start Education	1	
Exam Period	none	
Course Language	English	
Course Contents	<p>The MSc. 1 seminar "Architectural Reflections" explores a series of themes in the 20th century that has represented a variety of seminal positions in architecture. A number of books that represent a variety of themes and positions in relation to architecture have attained lasting relevance for the culture of architecture in the short 20th century. The seminal writings of this canonic period, beyond presenting a particular individual position, as a collection frame contemporary debates on architecture and its position as an autonomous discipline and within society.</p>	
Study Goals	<p>Each student will read a series of articles and extracts from a shortlist of seminal publications and presents weekly the readings in class.</p> <p>Gain specific knowledge in the field of theories in architecture, technologies and human sciences, which enable him/her to link theories and design skills within the design studio in an adequate way.</p> <p>Understand how people perceive spaces, their positioning, proportions and materialisation and the actual use of buildings, spaces and spaces in-between them.</p> <p>Understand how a design brief can be related to the actual needs of society at a given moment in history and by doing so, understanding the societal relevance of architecture.</p>	
Education Method	<p>Seminars: 28 hours Independent study: 56 hours</p>	
Literature and Study Materials	<p>A selection (shortlist) of canonical books of architecture. The definitive list varies every year and will be announced in the first class meeting.</p>	
Assessment	<p>An end-of-term paper (due date TBA), centred on the reading of one book, in the form of a book-review or a discussion of one particular aspect discussed in the book (either a project or an idea that is dealt with), confronted with original sources discovered through the reading and/or in addition to other relevant sources proposed by the student. Weekly class participation in the form of short presentations on the reading is an integral part of the course.</p>	
Special Information	<p>The maximum marking period is 10 work days.</p> <p>For more information, contact: pb-edu-bk@tudelft.nl</p>	
Period of Education	Quarter	
Course evaluation	<p>For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/</p>	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

Starting Course MSc1

ARX071	Workshops Faculty of Architecture and the Built Environment	1
Responsible Instructor	Dr.ir. R. Cavallo	
Contact Hours / Week x/x/x/x	X / 0 / 0 / 0	
Education Period	1	
Start Education	1	
Exam Period	none	
Course Language	English	
Course Contents	<p>All new MSc students of the Faculty of Architecture and the Built Environment will start the academic year 2018-2019 with a 3-day workshop programme on 30 & 31 August and 3 September 2018.</p> <p>The programme is developed in cooperation with TPM colleagues of the section "Ethics & Philosophy of Technology". With a mix of lectures, workshops and sessions guided by teachers of the faculty, you will be introduced to (design) ethics, scientific integrity and intercultural communication.</p> <p>With these workshops you will make a first start to cover the ethics engineering learning goals of the MSc programmes. Further, we wish to enhance the interaction between all new students, both Dutch and International, and to introduce you to settings, methods and procedures of the faculty.</p> <p>Participation in the workshops is mandatory for all students starting their MSc 1 programme in September.</p>	
Study Goals	- The student has a basic understanding of moral sensibility, moral analysis skills, moral creativity, moral judgement skills, moral decision-making skills and moral argumentation skills.	
Education Method	Lectures, workshops, role playing game, assignment	
Assessment	Workshops attendance Assessment: V (passed) or NV (failed)	
Special Information	<p>The academic year will start with a three day workshop programme. With a mix of lectures, workshops and sessions guided by teachers of the faculty, you will be introduced to (design) ethics, scientific integrity and intercultural communication. With these workshops you will make a first start to cover the ethics engineering learning goals of the MSc programmes. Further, we wish to enhance the interaction between all new students, both Dutch and International, and to introduce you to settings, methods and procedures of the faculty. The workshops will lay the foundation for your master studies. It is highly recommended for both Dutch and International students to participate in this programme and you will be granted 1 EC after following the whole programme. This EC will be used in your electives list Master 2/3.</p> <p>For more information see website: https://www.tudelft.nl/studenten/faculteiten/bk-studentenportal/onderwijs/master-of-science/workshops-master-students/</p>	
Period of Education	3 days	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

MSc 2

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

Compulsory

AR2A015	Delft Lectures on Architectural Sustainability	3
Responsible Instructor	Ir. P.G. Teeuw	
Responsible Instructor	Prof.dr.ir. A.A.J.F. van den Dobbelsteen	
Course Coordinator	Ir. P.G. Teeuw	
Contact Hours / Week x/x/x/x	14 hours per quarter	
Education Period	1 3	
Start Education	1 3	
Exam Period	1 3 4	
Course Language	English	
Required for	Compulsory MSc2 course for the variant (track) Architecture of the master Architecture, Urbanism and Building Sciences.	
Course Contents	This lecture series emphasizes the possibilities of architecture itself as a means to promote sustainable development. Architecture as a tool to create a more sustainable world. Rather than focus on added sustainable technologies, this course searches for architects possibilities to design good sustainable architecture and a smart organisation. A 'sustainability' driven design attitude should become a second nature for students.	
Study Goals	<p>The student:</p> <ul style="list-style-type: none"> - Has an overall understanding of the factors associated with: sustainable development related to architectural design. - Has an understanding of the architects responsibilities towards sustainable design. - Is able to position him or herself in matters concerning the relation between sustainable development in general and architecture in particular. - Is capable to formulate possible architectural solutions for building-related environmental issues and has an understanding of their social, ethical and economic dimensions. 	
Education Method	Lectures and debate	
Literature and Study Materials	<ul style="list-style-type: none"> - Reader Delft Lectures on Architectural Sustainability; edition course year 2018-2019, September 2018 (Brightspace) - Jón Kristinsson, Integrated Sustainable Design, Delft/Deventer 2012 - Required reading for the exam: Chapters 2, 3, 4, 5, 8, 9, 10 (Bouwshop) - Anke van Hal, The merger of interests, Breukelen 2009 - Required reading for the exam: up to and including page 17 (Download from the internet) - Anke van Hal, The merger of interests 2.0, Breukelen 2014 - Required reading for the exam: Chapter II and III (Download from the internet) - Some parts of the website http://www.urbangreenbluegrids.com as links included in the reader; edition course year 20182019, September 2018 (Brightspace) - Some articles of the book Circulariteit op weg naar 2050? red. Peter Luscuere 2018 (download from the internet)' pages indicated in the reader; edition course year 20182019, September 2018 (Brightspace) 	
Assessment	Written exam	
Special Information	The maximum marking period is 15 work days.	
Period of Education	Quarter	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

Compulsory Choice

AR2A010	Architectural History Thesis	6
Responsible Instructor	Prof.dr.ing. C.M. Hein	
Course Coordinator	Prof.dr.ing. C.M. Hein	
Instructor	Drs. C.A. van Wijk	
Instructor	Dr.mr. E. Korthals Altes	
Instructor	Dr. H.D. van Bergeijk	
Instructor	Dr. M.T.A. van Thoor	
Instructor	Dr. R.J. Rutte	
Contact Hours / Week x/x/x/x	10 hours per quarter	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	Research writing:	
	<p>The student:</p> <ul style="list-style-type: none"> - Demonstrates a general historical understanding of the architecture profession and the role of the architect in society. - Can apply broad knowledge of the history and theory of architecture and related art forms and the humanities, as well as of the social and cultural developments relevant to architectural design. - Has developed appropriate academic writing skills. For TU Delft BSc graduates, a finished AC3 paper should have provided them with skills in planning and developing a research project, critical and responsible use of sources, and logical argumentation. These skills will be applied and expanded during this course. <p>Language skills:</p> <ul style="list-style-type: none"> - The student has appropriate English language skills. <p>If in doubt, the student should consult the OpenSourceware made available through the following links:</p> <p>https://learn.saylor.org/course/view.php?id=42</p> <p>https://learn.saylor.org/course/view.php?id=43</p> <p>These links lead to the English courses offered for free to all by the online Saylor Academy.</p> <p>Please Note: Any issues regarding research skills or language capacities will have to be addressed before the start of this course, and will require serious commitment by the student. The language courses are extensive and the student will not be able to combine them with the normal thesis workload during the semester.</p>	
Course Contents	<p>The history thesis (geschiedeniscriptie) is a required independent research project in the Master 2. It may deal with architecture, urbanism, the visual arts, design and photography, film or literature. It provides students the opportunity to hone their research skills on a historical topic. If the focus is on architecture, the research can also be of a typological kind, for example on a particular type of building, preferably not through the centuries but concentrating on a particular period or aspect. If urbanism is the subject matter, the themes may vary from the regional to the neighborhood scale, design and decision making processes, the role of politics, theories (ranging from functionalism to morphological approaches, from programmatic aspects to ideas about the creative classes and gentrification). It may also be a topographical / territorial topic, where appropriate in combination with other aspects. Finally it can regard also the investigation of an abstract topic: rhythm, scale, theory of proportions, ornamentation, eclecticism and monumentality, etc. in which an historical point of view is dominant.</p> <p>Using mixed methods from archival research and oral history to close reading of visual and textual analysis students critically examine a topic of their own choosing, producing a substantial research paper based on a clear historical perspective. This analytical and conceptual experience forms an important complement to the design&#8208;based education of the master in architecture. Writing a history thesis offers students a unique opportunity to pursue a research on a specific topic and requires students to work independently. Building on historical knowledge and research skills gained in introductory and advanced courses, students focus on primary materials and pursue an original question. They develop a complex argument and grapple with multiple data sets and interpretations. Collective and individual meetings with tutors provide a framework for the production of an original, well&#8208;written essay of about 9000 words. Students need to be familiar with library catalogues and search engines. The essays are required to demonstrate superior and consistent understanding of scientific writing (i.e. footnotes, bibliography, front and back matter). topics have to be approved by the supervisor who has to be a member of the Chair History of Architecture and Urban Planning. The topic has to be discussed with the supervisor prior to commencing. Sometimes teachers will offer a workshop.(See Blackboard).</p>	
Study Goals	<p>Learning objectives</p> <p>After completion of the course the student:</p> <ul style="list-style-type: none"> - Exhibits in depth knowledge regarding a specific field of study within architecture, urbanism, art, and or media. - Is able to plan and develop a scientific research project. - Is able to develop a critical and logical argumentation from a scientific research question based on primary sources. - Is able to evaluate, interpret and make proper reference to available sources. - Is able to build on existing knowledge and develop new knowledge. 	
Education Method	<p>Thesis supervision: 8 hours</p> <p>Independent study: 158 hours (a day in the week has been reserved for working on the thesis)</p>	
Literature and Study Materials	Blackboard	
Assessment	Thesis (For more information - length, references, use of literature and other sources - see blackboard).	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Quarter 1 and quarter 3	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR2AT030	Architecture Theory Thesis	6
Responsible Instructor	Dr.ir. H. Sohn	
Course Coordinator	Dr.ir. H. Sohn	
Instructor	Dr. S.A. Read	
Instructor	Dr.ir. A. Radman	
Instructor	Dr.ir. H. Sohn	
Instructor	Dr.ir. S. Kousoulas	
Contact Hours / Week	14 hours per quarter	
x/x/x/x		
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Required for	As per MSc2 Architecture program requirements.	
Expected prior knowledge	Students are expected to have developed a specific interest in Architecture Theory, which includes previous reading and some research in this field. Previous writing on theoretically driven topics is highly recommended.	
Summary	The Architecture Theory Thesis course offers students the possibility to explore and engage the rich conceptual and theoretical dimensions of architecture through the development of theoretical arguments and intensive research on a topic of their own choice. A free thematic allows students to conduct individual, independent research on issues and concerns that matter to them, thus offering them the opportunity of deepening their knowledge and expertise on topics which are close to their interests and passions. The focus in all cases, however, will be placed on developing the theoretical aspects of these topics.	
Course Contents	The Architecture Theory Thesis course is designed to guide participating students through the different stages of academic research and writing, aiding them in the identification of the theoretical dimensions and frameworks of their selected research topic and 'problématique', offering them relevant and timely feedback and support on their progress throughout the term. The tutors involved in this course assist students in the formulation of sound problem statements, research questions and argumentation lines towards the production of qualitative theoretical Masters' Theses.	
Study Goals	Although students are required to bring their own research passions and topics of interest to the course, we encourage students to orient these topics within two general domains or areas of specialization: 1. Architecture and political economy: Dealing primarily with research on the systemic and scalar complexities of (power) relations, forces, flows and networks, focusing primarily on their impact on -and relationship to- the (built) environment. Further angles include research on geo-politics, bio-politics and contemporary political-economy through critical and speculative investigations on the spatial, social and material transformations and consequences that these unleash across multiple scales, levels and domains. Possible themes, topics and approaches are: critical/speculative approaches to contemporary urbanisation; territorial & material flows: refuge & migration; metabolic/planetary urbanism; socio-material and spatial practices: resistance, subversion, transgression, social movements; etc. Key thinkers: David Harvey, Neil Smith, Peter Marcuse, Neil Brenner, Henri Lefebvre, Erik Swyngedouw, Andy Merrifield, Matthew Gandy, Manuel Castells, Saskia Sassen, Michel Foucault, Slavoj Zizek, Loïc Wacquant, among many others. 2. Architecture and libidinal economy: Research topics dealing primarily with issues related to matter and image, and the means and techniques of production in architecture. Mainly focused on pluralist approaches and speculative theory methodologies, and philosophical inquiries. Themes include the social effects and human affects of technological developments on the mode and means of conceiving, developing and producing cultural objects, artifacts and/or architecture. In other words, research on the material and immaterial processes and productions of things and images and their relation to experience, perception and cognition. Key words or concepts: technology, media, materialism/new-materialism, radical empiricism, speculative realism, ecological thinking, affordance, biopower/noopower, affect theory, complexity theory, geometry, space, time, memory, perception & experience of space. Key thinkers: Gilles Deleuze, Felix Guattari, James J. Gibson, Brian Massumi, Manuel DeLanda, Katherine Hayles, Henri Bergson, Martin Heidegger, Bruno Latour, Katherine Malabou, Jane Bennett, Karad Barad, Rosi Braidotti, Stanford Kwinter, among many others.	
Education Method	Upon completion of this theory course the participants will: have a solid base of knowledge on recent literature in the humanities and the social sciences and their relation to architecture practice and theorization. the appropriate knowledge of the theory of architecture and related art forms as well as of the social and cultural streams of relevance for architectural design. have developed in-depth knowledge regarding the specific field of study relating to architecture, urbanism, art, and/or media. have acquired knowledge and practice on academic research and writing skills, and will be able to apply these in theoretical argumentation and the formation of discourse. have developed a consistent and cohesive research methodology by distinguishing between a problem statement, an argumentation paper and fully developed research paper will have acquired understanding of the societal, cultural, technological and ethical dimensions and implications of conducting research on architecture	
Education Method	The Architecture Theory Thesis course is based primarily on independent self-study. It nevertheless offers students sufficient and qualitative contact-time at the early stages through the Introduction Lecture and two group meetings in which students are encouraged to introduce and discuss their topics and theoretical frameworks with their peers and tutors. The exchange of peer-reviews and feedback at this stage offers students a solid point of departure. After the group meetings in the beginning of each term, students develop their work independently. The progress is checked and discussed at regular intervals, guidance is offered through written feedback from the tutors, followed by individual consultation moments, when students can discuss their work with tutors in person. Since this course is based on a self-study format, feedback and guidance are offered on the progress made by the students, who take full ownership of their work. Tutors assist, encourage and advise students in their research and writing, and accompany them throughout the development of their Theses within one semester. Preparatory Phase: Self-study	

Formulation of Abstract

Introductory Phase:

Contact-time

Introduction Lecture: course introduction

Group meetings (2): tutor-led seminar-type discussions and peer-reviews

Problem Statement & Research Questions

Preliminary Reading List

Research-Writing Phase:

Self-study periods

First & Second Drafts

Feedback & Consultations

Final Thesis

For more information please contact the course coordinator.

Course Relations

This course is a required choice-course for MSc1/2 curriculum that awards 6 ECTS upon successful completion.

Accreditation is required for P2 registration, hence we urge students to complete this course prior to MSc3 enrolment!

This course is highly compatible with the Architecture Theory Design Studio Agential Materialisms (AR2AT020) offered only in Spring terms Q4. Students wishing to follow both courses in one term are asked to enrol in the assigned period Q1/3 and Q4.

For questions please contact the course coordinator.

Literature and Study Materials

Part of the objectives of this course is for students to learn how to build a detailed and relevant reading list and research bibliography based on their individual thesis topic. Hence, students will largely define their consulted first and secondary sources.

Tutors will recommend relevant readings and sources during the feedback phases of the course, and upon request by students.

Prerequisites

As per MSc2 Architecture program requirements.

Assessment

This course will be assessed via a series of deliverable assignments:

Problem Statement

First and Second Progress Drafts

Final Thesis

For evaluation criteria and rubrics please consult the course information on Brightspace or contact the course coordinator.

Enrolment / Application

This course has limited enrolment and special requirements!

All interested students are requested to submit a tentative thematic research proposal (motivational abstract) to the Architecture Theory chair in order to determine the theoretical viability of the proposal in advance.

Research proposals should be uploaded on Brightspace and sent via email to the AT chair office, by the announced deadline. Students will receive an email after registration to the course. The abstract deadline will always be prior to the beginning of the course.

A concept form for the tentative thematic research proposal and further information are available upon request.

Send us an email to: AT-MS-C-BK@tudelft.nl

Note: The submission of a proposal does not guarantee acceptance into this course. Proposals that are not theoretical or that lean on clearly historical methods, will not be selected, and the students will be informed prior to the beginning of the course.

Note: Due to the seminar structure of this course students must be able to attend the introductory information lecture, and the group meetings held in the first quarter of the semester.

Students with course scheduling conflicts should not sign up for this course.

This course is not open for students following a study abroad semester.

Special Information

The maximum marking period is 10 working days from the final deadline. Marks will be registered in advance of the following academic term.

This course is equivalent to the History Scriptie. It is mandatory and awards 6 ECTS upon completion.

This course has limited enrolment, and is open to students who submit a tentative thematic research proposal with clear theoretical scope.

This course requires attendance to lectures, group meetings and consultations. Thus, students with schedule conflicts or study abroad plans are not eligible for this course.

Period of Education

Full semesters (Q1-2 & Q3-4)

Minimum aantal deelnemers 30

Maximum aantal deelnemers 75

Year
Organization
Education

2018/2019
Architecture
Master Architecture, Urbanism & Building Sciences

21 ECTS Electives

Introduction 1

The Master 2 program of Architecture consists of a total of 30 credits, of which 21 credits compulsory and 9 credits free elective.

Compulsory (total of 21 credits):

- History Thesis (AR2A010) or the Theory Thesis (AR2DSD820) of 6 credits
- The Delft Lectures on Architectural Sustainability of 3 credits
- An approved Master 2 Architecture design project (12 credits) (see list in studyguide)

Elective (total of 9 credits):

- free electives as to be found in the studyguide

There are 3 possibilities for doing the Architecture Master 2 design project:

- 1 - the Master 2 Architecture design project can be an Architecture Master 1 design project (that you have not followed yet), that you attend as an Master 2 design project (12 credits)
- 2 - a design project (12 credits) from the 'MSc 2 design project list', either a semester project or a quarter project (quarter 2 or quarter 4)
- 3 - it is also possible to participate in an (international) program of another university. For this please contact 'International Office' and Students Affairs (O&S)

The courses in this section are agreed on by the faculty Director of Education and the Master coordinator of Architecture as Architecture design projects suitable for Master 2.

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

MSc 2 Design Projects

AR0026	MEGA	12
Responsible Instructor	Dr. M. Turrin	
Responsible Instructor	Prof.ir. R. Nijssse	
Course Coordinator	Dr. M. Turrin	
Contact Hours / Week	93 hours per quarter	
x/x/x/x		
Education Period	4	
Start Education	4	
Exam Period	none	
Course Language	English	
Expected prior knowledge	Each student is expected to have knowledge about the disciplines to perform in the course. The level of the knowledge should be at least BSc.	
Summary	<p>MEGA is a collaborative integral multi-disciplinary design of a special big and/or tall building. This could be a multifunctional skyscraper or a multifunctional building with a large span, such as a stadium, a sports facility, a museum, an airport, train station or transport hub.</p> <p>The course targets master students in Architecture, Real Estate & Housing, Building Technology and Civil Engineering; and it is open to non-TU Delft students, conforming with TU Delft regulations. It can be chosen by Building Technology students in MSc2 (choice between EXTREME AR2AE010 and MEGA AR0026).</p> <p>Students work in teams. The design team of 4 to 7 students is responsible for delivering an integrated design as a multidisciplinary team; while each student is responsible for one discipline.</p> <p>Disciplines involved are: architecture, structural design, climate design, façade design, design/construction management and computational design/BIM. Sustainability runs transversally across these disciplines.</p> <p>The design process occurs in a collaborative digital design environment, supporting the workflow across the different disciplines. The collaborative digital design requires an integrated 3D approach with BIM (Building Information Modelling), performance analysis, and file to production processes.</p> <p>The workshop is very realistic and closely matches the design process of large international projects in the competition phase; it is a very good preparation and experience builder for your future career. It is highly appreciated by future employers.</p> <p>The course is supported by external international design/engineering offices. With them, the location of the project will be chosen and the brief of the design assignment will be developed. As examples from recent years, support was given by Arup and UNStudio, by ABT and Neutelings Riedijk Architecten. Examples of past collaborations include also Municipalities and Provinces, such as the City of Rotterdam, Almere and Den Haag, and the Province of Friesland.</p>	
Course Contents	<p>Disciplines:</p> <p>The team is organized on disciplines:</p> <ul style="list-style-type: none"> -Architectural Design -Structural Design -Climate Design and building services -Façade Design -Project and construction management -Computational Design <p>The disciplines are divided amongst the team members; each member is responsible for the contribution and integration of these aspects in the collective design. Students are encouraged to match their role in the team with the specialization they follow in the Master track.</p> <p>Phases:</p> <p>The course is structured in 3 phases:</p> <ul style="list-style-type: none"> -Lectures; excursion; intensive learning -Sketch design of 2-3 options; presentation of options; choice of one option -Preliminary design of the chosen option; final presentation <p>The first phase includes lectures by professors, external experts and architectural/engineering firms. During the excursion, the project site is visited. Intensive sessions allow studying and practicing group dynamics, collaborative work, computational design.</p> <p>The second phase focuses on the design of multiple options. The daily design activities are facilitated by tutors who are expert in the disciplines. Each discipline has a weekly time for individual consults. During a presentation, one design option is chosen for further development.</p> <p>The mid-term presentation is facilitated by external experts. Feedback by them and tutors inform the design and decision-making. Following, the external experts give a (public) lecture.</p> <p>After the mid-term presentation, the design option is detailed with the team, leading to the end presentation. The end presentation is an important event with external experts assessing the designs. The design is summarised in reports about each discipline.</p> <p>Site:</p> <p>The assignment has an actual site where the building is planned. Past examples are in Amsterdam, Rotterdam, London, Brussels, Guangzhou.</p> <p>Objectives:</p> <p>Collaborative design</p> <ul style="list-style-type: none"> -Working together with different disciplines (different goals and backgrounds) -Realistic design environment <p>Sustainable design</p> <ul style="list-style-type: none"> -Definition of sustainability for project -Contribution of all disciplines to holistic sustainable design -Development of low/zero/plus energy design <p>Computational Design</p> <ul style="list-style-type: none"> -Collaborative digital workflow across disciplines / BIM 	

- Parametric design strategies/methods
- Performance analysis with simulation tools
- Feedback loops between numeric assessments and geometric modelling
- Digital interaction between design, engineering, analysis, manufacturing and construction

Architectural Design

- Interaction architecture/masterplan/environmental context
- Development of architectural design concepts
- Integration of structural, façade, climate concepts into architectural design
- Integration of sustainability and construction into architectural design
- Development of preliminary design

Structural Design

- Development of structural concepts
- Development of concept design
- Evaluation of different structural systems in relation to architectural design
- Integration with architecture, façade, climate design
- Dimensioning of structural elements
- Development of preliminary design

Climate design

- Developments of climate and building services concept
- Development of conceptual design
- Evaluation of different climate and building services systems in relation to architectural design
- Integration with architecture, structure, façade
- Dimensioning of HVAC installations
- Development of preliminary design

Façade design

- Development of façade concepts
- Developments of conceptual design
- Evaluation of different façade systems in relation to architectural and climate design
- Integration with architecture, structure, building services

Project and construction management

- Control of objectives, tasks, deliverables
- Facilitation of the group process
- Prediction of income and building costs; optimisation
- Development of site management and logistics
- Development of construction methods/planning

Study Goals

The student is able to design a coherent, significant, elaborated, correct and innovative design - on mainline and on aspects on MSC 2 level.

Specified for this course:

After successful completion of the course, the student will be able to:

- work in an interdisciplinary design process;
- understand and apply discipline-related knowledge in projects for big or tall buildings.
- develop design strategies to achieve high building performances;
- integrate numeric analysis and simulations to address design choices.

Education Method

In this course, the education methods are:

- Lectures by professors and specialists
- Collaborative working sessions with other students
- Exposure to external architectural practice and external experts
- Consults with tutors
- Making presentation and receiving/integrating feedback

Special is the involvement of external practitioners and external experts linking this course to practice.

For this course several multidisciplinary teams of students are formed, which are each responsible for one integral design. Each student has a different role in the design team and is tutored by instructors specialized in her/his discipline. When possible, students take roles according to their specialization during the Master studies.

Apart from focussing on his/her own discipline, the aim for each team-member is to achieve the best integral design paying special attention to collaborative design, sustainable design and computational design.

Feedback is received during the mid-term and final presentation from the external experts and tutors.

Literature and Study Materials

More specific literature is provided at the start of the course. The literature below provides an indication on relevant general content.

Tall Buildings

Kloft, E., Eisele, J., (Ed), (2003) High-Rise Manual, Hardcover
Ng, E. (Ed.). (2010) Designing high-density cities for social and environmental sustainability. London, Earthscan.
Ali MM, Moon K. (2007) Structural developments in tall buildings: currents trends and future prospects. Architectural Science Review 50(3): 205223.
Baker WF, Korista DS, Novak LC. (2008) Engineering the worlds tallest Burj Dubai., In The CTBUH 8th World Congress Tall & Green: Typology for a Sustainable Urban Future, Dubai; 110.
Brown, N. C., & Mueller, C. T. (2016) Design for structural and energy performance of long span buildings using geometric multi-objective optimization. Energy and Buildings, 127, 748-761. Cross,P., Vesey,D., Chan, C.M., (2007) High-Rise Buildings. In Melchers, R.E., Hough, R., (Ed), Modeling complex engineering structures, ASCE.
Stylianios, D., Charitou, R., Hesselgren, L., (2006) Computational Methods on Tall Buildings - The Bishopsgate Tower, Communicating Space(s) In proceedings of eCAADe 2006, 778-785.
Almusharaf, Ayman M.; Mahjoub Elnimeiri (2010) A Performance-Based Design Approach for Early Tall Building Form Development , CAAD - Cities Sustainability, Proceedings of ASCAAD 2010, 39-50.
Kimpian, J., Mason, J., Coenders, J., Jestico, D., Watts, S., (2009) Sustainably Tall: Investment, Energy, Life Cycle., In proceedings of ACADIA 2009: reForm() - Building a Better Tomorrow, 130-143.
The Structural Design of Tall and Special Buildings, International Journal, John Wiley & Sons, Ltd
Moon K, (2008) Sustainable structural engineering strategies for tall buildings. In: The Structural Design of Tall and Special Buildings, Special Issue: CTBUH 2nd Annual Special Edition: Tall Sustainability 17(5): 895914.
Taranath, BS, (2011) Structural Analysis and Design of Tall Buildings: Steel and Composite Construction. Taylor & Francis.
Taranath, BS, (1988) Structural Analysis and Design of Tall Buildings. McGraw-Hill, New York.
Schueller, W., (1986) High-Rise Building Structures (2nd edn.) Robert E. Krieger Publication Company, USA.

Big buildings

Barnes, M., Dickson, M., (Ed.), Widespan Roof Structures, Thomas Telford, London, 2000

Hough, R., Carfrae, T., *Lightweight Long-Span Roofs*. In Melchers, R.E., Hough, R., (Ed), *Modeling complex engineering structures*, ASCE Publications, 2007

Imbert F., KathrynStutts Frost, Al Fisher, Andrew Witt, Vincent Tourre, and Benjamin Koren, (2012), *Concurrent geometric, structural and environmental design: Louvre abu dhabi*. In *Advances in Architectural Geometry*, 7790.

Kawaguchi, M., (1991) *Design problems of long span spatial structures*. *Eng. Struct.* 13, 144163.

Majowiecki, M., (2005) *Structural architecture for large roofs: concepts and realizations*. *Bautechnik*, 82(3): 147156.

Majowiecki, M. (1990) *Observations on theoretical and experimental investigations on lightweight wide span coverings*, International Association for Wind Engineering, ANIV.

Hladik, Pavel; Clive J Lewis (2010) *Singapore National Stadium Roof*, *International Journal of Architectural Computing* 8(3): 257-278

Shepherd, P., & Hudson, R. (2007) *Parametric definition of Landowne road stadium*. in: *International association of shell and spatial structures*, Venice, Italy, 2007,CD-ROM.

Hudson, R. (2008) *Frameworks for practical parametric design in architecture*. In: Pottman, H., Hofer, M. & Kilian,A. (eds), *Advances in architectural geometry*. Vienna, Austria,17-20.

Sanchez-Alvarez J, (2005) *Materializing geometry: the free-form reticulated roof structures for the new Milan Fair*. In: *Proceedings of AEC2005 Symposium*, Rotterdam, NL.

Assessment

Presentations and Reports

Assessment is twofold:

- Group assessment for integral group design based on presentations
- Individual assessment for discipline report

The students mark is a combination of the group assessment and individual assessment.

Special Information

The maximum marking period is 15 work days.

Remarks

The course is in English - spoken and written.

Period of Education

Quarter

AR0037	Studio Making	12
Responsible Instructor	Ir. H.A. van Bennekom	
Responsible Instructor	Ir. S.T. Bakker	
Course Coordinator	Ir. H.A. van Bennekom	
Education Period	3 4	
Start Education	3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	completed MSc1	
Course Contents	<p>"Studio Making" is a design studio that offers realistic design challenges, with real external partners, embedded in a series of interesting lectures and site visits. The topics and assignments will be mainly focussed on designing new ideas (based on solid research on the local needs and context) to increase and support circular processes in which demolition waste becomes an ingredient in new concrete. By doing this, the new results will therefor probably posses exiting, unexpected, new qualities and possibilities.</p> <p>TU Delft/Complex Projects is participating in an international project team of researchers, designers and builders that are seeking new applications with re-used raw materials (demolished concrete, brick and tiles). The TU Delft/Complex Projects is especially asked to participate in this international project because of its educational, research and student design qualities. "Studio Making" will be dedicated to designing new applications with recycled concrete and other raw materials, for real projects through western Europe. The sites will be visited during the course, and our designs will be discussed and evaluated with local parties and stakeholders in order to be realized.</p> <p>The Design "Studio Making" builds on the successful approach and contents of the 3ects course 'Making', in which students explore new design possibilities through hands-on experimenting and modeling with concrete, supported by lectures, site visits and design consulting.</p>	
Course Contents Continuation	<p>About 50% of primary raw materials in the EU are used in the building sector. At the same time, this building sector is also responsible for about 35% of all wastes. Within the construction and demolition wastes, components like concrete, bricks, tiles and ceramics have very high potential to be applied as recycled aggregates and sands in new types of concrete etc. However, until now, recycled materials are mostly down-cycled to be used as filling materials in infrastructure projects. Although the recycling quota in North-West Europe is more than 70%, but less than 4% is re-used for the original purpose: concrete production. To support recycles and further development of sustainable improvements, this studio will design new applications of concrete in which recycled aggregates define new qualities and possibilities</p>	
Study Goals	<p>the student:</p> <ul style="list-style-type: none"> - Has developed further skills in architectural design satisfying both aesthetic and technical / functional requirements. - During this trajectory skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology, social and human sciences. - Additionally, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and societys needs, including environmental and waste aspects. - During Master 1, 2, 3 & 4 skills are acquired by cumulation to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing. - skills are acquired to incorporate an understanding of the design process with regard to structural design, materialisation of buildings, comfort and climate control. 	
Education Method	design, tests, presentations, site visit, visiting critics	
Assessment	design and research book	
Special Information	The maximum marking period is 10 work days.	
Elective	Yes	
Tags	Challenging Design Drawing Energy & Industry Projects Prototyping Sustainability	
Period of Education	week 3.8 kick off, week 4.1-4.11 studio	
Leerstoel	CP	
Minimum aantal deelnemers	2	
Maximum aantal deelnemers	24	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR0052	Design Studio: Architecture and Urbanism Beyond Oil	12
Responsible Instructor	Prof.dr.ing. C.M. Hein	
Course Coordinator	Ir. H.A. van Bennekom	
Contact Hours / Week x/x/x/x	0/X/0/X	
Education Period	2 4	
Start Education	2 4	
Exam Period	none	
Course Language	English	
Expected prior knowledge	completed MSc1	
Course Contents	<p>An end to our petroleum-based lifestyles and the use of renewable energies will impact our cities and buildings. The Studio Architecture and Urbanism Beyond Oil argues that we have to first understand the enormous collective presence of oil in the built environment, its impact on production processes, financial flows, and associated social and cultural patterns in our everyday environment, and the long history of oils impact on our lives. Then, we can imagine the needs and spaces of the future and transform our existing landscapes, cities and buildings. The Architecture and Urbanism Beyond Oil studio starts with an investigation of how petroleum its extraction, refining, transformation, and consumption has shaped our built environment in visible and invisible ways around the world over the last 150 years. Some students have built on their history thesis exploring oil depictions in Hollywood films or evolving mental maps of oil as a foundation or design. Others have explored the historical development of sustainable architecture through the elective "Building Green." The studio identifies global landscapes of energy and oil. It maps and translates the findings into accessible visuals, with the goal to develop an architectural, urban or landscape project that address these findings and propose new uses and solutions. The studio has included analysis of the relevance of oil for the urban and architectural form of the port and city of Rotterdam. Students have imagined possible transition trajectories, notably suggesting a recuperation of the oil-dedicated spaces from the sea-side and new connections across the river. Other students have imagined the transformation of gas stations as lifestyle hubs, roads as energy generators, or floating self-sustaining cities. Design strategies developed in the studio can be applied to cities around the globe and possible research destinations including Rotterdam, Dunkerque, Philadelphia, Houston, and Curacao.</p>	
Study Goals	<p>Architectural and urban design are anchored in larger political, economic, social and cultural contexts. Students will learn how to place their design into the global context of oil as a commodity, the generator of financial flows, and as a mindset. They will do primary research on Rotterdam as a case study. They will work in groups on a chosen location and develop a project that acknowledges the larger theoretical and methodological premises of the course and that takes into account the different disciplinary backgrounds of the participating students.</p>	
	<p>The course is open to students in architecture, urbanism, real estate, heritage, architectural history, history and media studies, etc. and mirrors in its composition the nature of design practice.</p>	
Education Method	Lectures, discussions, and studio design work.	
Assessment	Grades will be based on course participation, assignments and the final project.	
Special Information	The maximum marking period is 10 work days.	
	Open for students from all Dutch institutions. External students please check: http://tinyurl.com/qam99u4	
Period of Education	Quarter	
Minimum aantal deelnemers	4	
Maximum aantal deelnemers	24	

AR0067	Architecture & Urban Design	12
Responsible Instructor	Dr.ir. M.G.A.D. Hartevelde	
Responsible Instructor	Dr.ir. R. Cavallo	
Course Coordinator	Dr.ir. M.G.A.D. Hartevelde	
Contact Hours / Week x/x/x/x	8 hours per week	
Education Period	4	
Start Education	4	
Exam Period	none	
Course Language	English	
Expected prior knowledge	Skills are acquired to incorporate an understanding of the design (process) attained with regard to architectural/urban history, theory, art and technology as well as relevant general knowledge of human sciences. Additionally, skills are acquired to incorporate an understanding of the design (process) attained with regard to the relation between buildings, public spaces and society's needs, including environmental aspects. During the trajectory of the Master 1, 2, 3 & 4 studios, the complexity of the architectural and urban design increases leading to a level fit for architectural/urban practice.	
Course Contents	<p>Interventions in the contemporary city need constantly to be grounded on sharp design approaches in order to respond adequately to the necessities of our times.</p> <p>Nowadays we meet in public atria and do shopping in malls; we move along covered walkways and go from street to street by taking shortcuts through the buildings of a city block. All kinds of buildings hybridised and became multi-functional anchors in the city serving thousands of people daily. The railway stations of today are entangled with the urban tissue, airports have become cities, conference centres and world expos temporarily change the urban composition, and museums are also leisure centres. In the recent decades, the amount and the proportion of public space within urban buildings has steadily increased, with much of it forming part of a larger interior and exterior pedestrian network. On the other hand the amount and size of public buildings within the urban context increased too, changing the way the contemporary city is constructed. However, still rarely designers approach the city as architecture or the building as urban design.</p> <p>For these reasons there is nowadays a great need of identifying the available design tools in order to plan effective future interventions in our cities. Particularly in the case of existing urban environments, design approaches require a conscious understanding of urban design as well as an adequate knowledge of changes in building typologies.</p> <p>In this design studio, architects and urban designers work together in the examination of the urban space as architectural space and the architectural space as urban space. In this experimental design project, students and staff are interested on one hand to the urban intervention in the built environment and its effect on architecture, and at the other hand to the architectural treatment of the city and its effect on urbanism.</p>	
Study Goals	<p>The student:</p> <ul style="list-style-type: none"> - understands the interrelation of architectural and urban design, to evaluate and create proposals for strategic interventions, with regard to spatial-social patterns and the culture of the city - evaluates skills in architectural and urban design to create an elaborate design proposal in typological terms related to use, ownership and meaning - creates an elaborate design proposal on the edge/overlap of both professions, satisfying formal, technical and functional requirements, including materialisation. 	
Education Method	Interactive studio work	
Assessment	Design / Research, presented in drawing form with written commentary and a model.	
Special Information	<p>The maximum marking period is 10 work days.</p> <p>The studio work includes an excursion to the site. Please, do not hesitate to inform with the course coordinators what this year's case studies is.</p>	
Period of Education	Quarter 4	

AR0072	Solar Decathlon	12
Responsible Instructor	Prof.dr.ir. A.A.J.F. van den Dobbelsesteen	
Course Coordinator	Ir. P.G. Teeuw	
Contact Hours / Week x/x/x/x	8 hours per week	
Exam Period	none	
Course Language	English	
Course Contents	<p>The Solar Decathlon is a bi-annual competition of solar homes built by universities across the world. TU Delft is also participating in this competition.</p> <p>This course is connected to active involvement of students participating in the TU Delft Solar Decathlon team. This course deals with the architectural and technical design and elaboration of the TU Delft entry to the Solar Decathlon competition.</p>	
Study Goals	<p>The student is able to design a coherent, significant, elaborated, correct and innovative design - on mainline and on aspects on MSC 2 level.</p> <p>Specified for this course; the student is able to:</p> <ul style="list-style-type: none"> - collaborate in a team with other students - work on a joint design of an energy-neutral or energy-producing house - integrate various aspects of sustainability into the design of the house - elaborate on components of the design challenge, related to architectural design, structural design and engineering, envelope design and engineering, climate design and engineering, HVAC systems, electrical systems etc. 	
Education Method	Tutorials, workshops, (mid-term) presentations, reporting, exhibiting	
Assessment	The design, report and oral presentations will be assessed by different criteria. Also the group attitude and pro-activity of the student will be reviewed.	
Period of Education	Semester	

AR0076	The New Town: Design Studio Africa	12
Responsible Instructor	M.J. Emmerik	
Responsible Instructor	Prof.dr. W.A.J. Vanstiphout	
Course Coordinator	M.J. Emmerik	
Instructor	Prof.dr. W.A.J. Vanstiphout	
Instructor	M.J. Emmerik	
Education Period	4	
Start Education	4	
Exam Period	none	
Course Language	English	
Summary	<p>This Research and Design studio is focused on one of the fastest urbanizing regions in the world: the African west coast between Cote d'Ivoire and Nigeria where more than a dozen agglomerations with millions of inhabitants are stretched over an area of approximately 500 miles. This creates an urban area with a potential coherence and accumulative value comparable to regions such as the East Coast of the United States or the Pearl River Delta in China.</p> <p>The African 500 mile city however, in contrast to its American and Chinese stretches across five countries, with different political systems, economies working at different speeds and complex relationships with each other. On an urban level, they are connected by a dynamic of urbanization due to immigration and economic growth which brings huge pressures on the livability and ecological sustainability of the area. Conversely, the urbanization process itself is hugely pressurized by the effects of climate change, making linear city between Accra and Lagos one of the areas most at risk both from the rising of the sea level, and the swelling of rivers such as the Volta and the Niger.</p> <p>But there is more holding this region together. This part of West Africa has a very old, precolonial, precolonial history of urban civilization and states, with great examples in the Dahomey and Benin kingdoms. This shared history was however hacked into pieces during colonial times, that also brought with them a series of trading posts later developing into the metropolises of today. There is, in other words a large historical heritage to be found on the ground as a cultural backbone to the 500 Mile City.</p> <p>In this research and design studio students develop Urban and Architectural design projects based on extensive fieldwork in West Africa, exploring this area through the perspective of modern new town planning and try to conceptualize and explain these conurbation as part of the present global urbanization. How can we understand these large urban areas as a physical manifestation of its various backgrounds? How can we use the design models used by architects and urban planners for new town planning in the past to deal with this rapid urban growth? What are the contemporary planning issues of the new cities of the 21st century? Can the developed and developing nations learn from each other in the planning and development of new towns? And what effects does this have on the daily lives and the economies of the regions involved?</p> <p>This course, in combination with The New Town: Lecture series (AR0023) is open for students from the master tracks in Architecture (MSc2) and Urbanism (Q4 elective). It is organized by the chair of Design as Politics in collaboration with the International New Towns Institute.</p>	
Course Contents	<p>In this research and design studio you will develop Urban and Architectural design projects based on extensive fieldwork in West Africa. We will concentrate on a massive transnational conurbation that is forming between Abidjan (Ivory Coast) and Lagos (Nigeria). We will explore this area through the perspective of modern new town planning and try to conceptualize and explain these conurbation as part of the present global urbanization.</p> <p>The aim of the studio is to understand the development of this unplanned megacity, its effects on the daily life and local economies, and to explore the role that design and new town planning might play on many different scales in this urban situation where there is no strong role for a central state.</p>	
Study Goals	<p>After successful completion of this course you are able to:</p> <ul style="list-style-type: none"> Analyze the physical manifestation of rapidly urbanizing areas in relation to the social-economic and political context in which they emerge and to transform your findings into a design brief. Develop strategic architectural or urban interventions that guide or facilitate rapid urban growth. Reflect on western planning principles and their application to the African context and visa versa. 	
Education Method	Design tutoring / Studio sessions / Presentations / Field research	
Course Relations	One meeting each week, consisting of design tutoring and collective pin-up sessions combined with extensive field research.	
Course Relations	This studio is complemented by a theoretical introduction to New Town planning (AR0033). Enrollment to this lecture series is compulsory for students participating in this studio.	
Assessment	Assessment takes place based on a design project, your attendance and participation during the field research and a final presentation. More information will follow at the beginning of the course.	
Remarks	<p>This studio is organized by the chair of Design as Politics in collaboration with the International New Town Institute, and a number of international global parties such as the Dutch ministry for foreign affairs, UN Habitat and local universities and development agencies. For more information see: www.designaspolitics.nl and www.newtowninstitute.org</p> <p>Participating students are required to cover additional traveling expenses for a field trip to Africa (around 1300,- for travel and accommodation.)</p>	
Period of Education	This course starts in the second semester (spring 2018)	

AR0077	The Why Factory MSc2 Design Studio	12
Responsible Instructor	Prof.ir. W.G.M. Maas	
Course Coordinator	J. Arpa Fernandez	
Responsible for assignments	S. Gargaretas	
Contact Hours / Week x/x/x/x	0/0/0/X	
Education Period	4	
Start Education	4	
Exam Period	none	
Course Language	English	
Course Contents	<p>This course is a MSc2 studio, and is organized as a think tank. Studios at The Why Factory are content-driven design and research studios with a practical and theoretical scope. MSc2 studios are research labs and platforms that aim to analyse, theorize and construct future cities. They conduct a variety of investigations within the given world, and produce future scenarios beyond it: from universal to specific and global to local.</p> <p>MSc2 studios start with a specific brief and a statement on the future of urban life. Based on the brief, future scenarios will be developed leading to visionary, city-related designs.</p> <p>Students develop their specific approach to the brief and define the necessary scientific research. Calculations, simulations or modelling to support the studio work are elaborated in a parallel seminar: the MSc2 Future Models I seminar.</p> <p>The results of the research lead to a design project with consequent logic, convincing argumentation and illustrative and fantastic visuals.</p>	
Study Goals	<p>Upon completion of the Master 1, 2, 3 & 4 studio trajectory, the student:</p> <ul style="list-style-type: none"> - Has developed the necessary skills in architectural design that satisfy programmatic, aesthetic and technical requirements. - During the Masters trajectory, the complexity of the architectural design increases, leading to the level required for professional practice. - During this period, skills are acquired to increasingly incorporate an understanding of design processes, architectural history and theory, art, technology and human sciences. - Additionally, skills are acquired to incorporate into design an understanding of the relation between territory, buildings, spaces and societies needs, including environmental aspects. - During Master 1, 2, 3 & 4, skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing. - Together with the building technology training, during Master 1, 2, 3 & 4 skills are acquired to incorporate an understanding of the design process with regard to structural design, materialisation of buildings, comfort and climate control. 	
Education Method	<p>Atelier: 150 hours Self study: 270 hours</p>	
Assessment	Presentation	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Quarter	
Maximum aantal deelnemers	30	

AR0086	Infrastructure and Environment Design	12
Responsible Instructor	Dr. F.L. Hooimeijer	
Responsible Instructor	Dr.ir. T. Kuzniecowa Bacchin	
Course Coordinator	Dr. F.L. Hooimeijer	
Instructor	Dr.ir. T. Kuzniecowa Bacchin	
Instructor	Dr. F.L. Hooimeijer	
Contact Hours / Week x/x/x/x	0/0/0/X	
Education Period	4	
Start Education	4	
Exam Period	none	
Course Language	English	
Course Contents	<p>With urgent urban challenges such as climate adaptation, energy transition, and continued urbanisation, the urgency of integrating planning and design with urban engineering increases. The implementation of new technological interventions and the utilisation of the natural system is hampered by the lack of an integrated approach incorporating urban planning and design decisions. Meanwhile, urban and economic growth increasingly competes for infrastructure and environment, affecting the success or failure of the daily operating systems of cities and thereby urban competitiveness. The challenge is to fundamentally re-think the urban landscape in light of new technologies. The question is how to renew existing cities by integrating the parameters of the natural system, as well as technological innovations directly into urban development opportunities arising from spatial planning and design.</p> <p>In order to stimulate and design the synergy between design and engineering this course offers the possibility for architects, urban designers and landscape architects to get well acquainted with the concepts and language of civil engineers on the subject of infrastructure and environment; at the same time the civil engineers will get acquainted with the world and language of designers.</p>	
Study Goals	<p>In order to create an emerging path where synergy between the disciplines makes sure that technology becomes embedded in the design process, this course offers possibilities for both urban designers and civil engineers to get well acquainted with each others discipline. This is achieved by collaborating with the course Technology and Practice Water Management in Urban Areas at (CT5510) that elaborates on the technology of building site preparation and will show the collaborative worlds of soil and water.</p> <p>The goal of this course is that students will be able to:</p> <ul style="list-style-type: none"> Formulate their design perspective that is based in a conceptual or theoretical framework. Identify and discuss the synergy between natural conditions and technological potential and possibilities in urban environments. Analyse and design infrastructures on a regional scale and on the scale of the section. Identify and discuss the tension between public and private development in infrastructures and environments. Apply methods concerning the appraisal of sustainable urban environments and infrastructure. Demonstrate in a design the connection between the natural system and technical possibilities in urban environments. Be able to translate analyses into design and the design into a formal plan. Perform inter-disciplinary working. 	
Education Method	<p>Readings in the field of knowledge brokerage, technical entrepreneurs, landscape ecology, sustainability and urban theory for a better understanding and theoretical framing of the individual project.</p> <p>Exercises in building a theoretical or conceptual framework and translating analyses into design.</p> <p>Interdisciplinary learning by taking class with civil engineers and policy students in which understanding can be created for each others knowledge and skills, where fences between the knowledge fields can be broken down, where contacts can be made for later in professional careers. The Urban Water Management course starts in Q3 with 8 lectures of which the compulsory ones are indicated in the schedule, the others can be viewed on colleggerama. In Q 4 there is an assignment, excursion and workshop with the urban water management students.</p> <p>Workshops with professionals and with students of technical background to understand differences in language and concepts and learn to apply the technical information to the spatial context.</p> <p>Individual or group project as elaboration of the workshops.</p> <p>Project in practice: research assignment with a partner in practice to answer to the goals of this course. It needs to be with a company or institute, municipal department with a technical focus. With them you need to arrange that you work on a certain research or design project that can be done in 10 weeks, minus the time you need for the other activities in this course and your other electives. You can also take the summer months to extend the internship. The result is a report where, taking in consideration the learning goals for this course, a reflection is done on the project and/or way of working.</p>	
Literature and Study Materials	<p>Literature list is given with the course outline. It covers theory on sustainability, knowledge brokerage, eco system services, urban ecology, infrastructure and urban design.</p>	
Assessment	<p>The course results in an individual project or a project in practice. The content of individual project is:</p> <ol style="list-style-type: none"> 1) Use of theory to frame your research and design perspective. 2) Research and analyses of technical data/infrastructure of your site resulting in an environmental and infrastructure potential map. 3) Research and analyses of the surface of your site, resulting in a surface potential map. 4) Synthesis between 2 and 3 and together with 1 resulting in a (spatial) concept. 5) Concept translated in a performance based urban design that will be translated into a formal plan. 	
Remarks	<p>This course is combined with: Technology and practice Water management in urban areas CT5510 4ects</p> <p>Summary: master course on design and planning of the urban water management system. Water fluxes and relevant processes in water and soil. Storm water, surface water and groundwater drainage design (quantity and quality) in interrelation with subsidence and based on functional demands and standards. Storm water infiltration and building site preparation. Water wise spatial planning and urbanism. Water management policy development.</p> <p>Responsible Professor: Nick van der Giesen Course Coordinator: Frans van der Ven</p> <p>This course includes the course AR0093 Infrastructure and Environment Method Module. It is not possible to take both this course and AR0093.</p>	
Period of Education	Quarter	

AR0094	Bucky Lab A	12
Responsible Instructor	Dr.ing. M. Bilow	
Course Coordinator	Dr.ing. M. Bilow	
Education Period	3 4	
Start Education	3	
Exam Period	none	
Course Language	English	
Course Contents	<p>The focus of the semester is an innovative building construction or facade design for an architectural related building, this may be a part of a building, a pavillion or a facade. The task is a building component in which all the important technical and architectural aspects of a building are integrated in. The first three weeks students individually research and analyse the assignment in order to come up with an innovative concept. The remaining weeks of the semester are dedicated to a design by research process in which all the main aspects of the design, from applied mechanics, material propertie to production techniques are researched ending in an integrated final design. Computer modeling, virtual and full scale material prototyping are part of the process.</p> <p>This course is a shorter version of the already known bucky lab, so expect the same fun but in a smaller package ! We try to focus more on the construction and will reduce the building physics and structural engineering part.</p>	
Study Goals	<p>The student is able to design a coherent, significant, elaborated, correct and innovative design - on mainline and on aspects on MSC 2 level.</p> <p>Specified for this course: the student</p> <ul style="list-style-type: none"> - has an understanding of the relation between design, society, realisation, materialisation and functioning. - is able to design and evaluate building components based on their function and performance. 	
Education Method	Design consultation and computer modeling. Design by prototyping	
Assessment	Individual report of innovative concept and reports in team of two students of design by research process from concept to final design, main focus the level of integration of all the researched aspects.	
Special Information	The maximum marking period is 10 work days.	
Period of Education	summer semester starting in week 6	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR0096	EXTREME technology	12
Responsible Instructor	Prof.dr.ing. U. Knaack	
Course Coordinator	Ir. R. Schroën	
Contact Hours / Week	12 hours per week x/x/x/x	
Education Period	4	
Start Education	4	
Exam Period	none	
Course Language	English	
Course Contents	<p>The project is about building in a extreme situation, in respect to climate, location and function. Essence is the interaction between the extreme circumstances, the technical solutions, and the architecture. Extreme circumstances do request technical solutions which will be the starting point for the design development. The designer has to direct the 'engineer questions and answers', towards the articulation of the form which is based on integration of aesthetic and technology.</p> <p>"Die Architectur des 21 Jahrhunderts hat ihre Unschuld verloren, Gebaude müssen etwas leisten" Stefan Behnisch.</p> <p>In the end the student is able to understand technical solutions, to reflect on them, to applicate them and to transform them. And the student is able to design a coherent design result.</p>	
Study Goals	<p>The student is able to design a coherent, significant, elaborated, correct and innovative design - on mainline and on aspects on MSC 2 level.</p> <p>Specified for this course:</p> <p>In the end the student is able to design a healthy coherent building in extreme conditions with a focus on technical solutions: the student is able to apply, reflect and transform principles concerning climate, construction and structure.</p>	
Education Method	Design project	
Assessment	The design result including the aspects structure, climate and envelope.	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR0098	Sustainability project design and elaboration	12
Responsible Instructor	Prof.ir. M.F. Asselbergs	
Responsible Instructor	Prof.dr.ir. A.A.J.F. van den Dobbelsteen	
Course Coordinator	Ir. P.G. Teeuw	
Course Language	English	
Course Contents	This course is connected to active involvement of students participating in design teams related to practice. This course deals with the architectural and technical design and elaboration.	
Study Goals	The student is able to - collaborate in a team with other students - work on a joint design of a specific (building) design project - integrate various aspects of sustainability into the design of the project - elaborate on components of the design challenge, related to architectural design, structural design en engineering, envelope design and engineering, climate design and engineering, etc.	
Education Method	Tutorials, workshops, (mid-term) presentations, reporting, exhibiting (if applicable)	
Assessment	Portfolio of the design, report and oral presentations will be assessed by different criteria. Also the group attitude and pro-activity of the student will be reviewed. All depending on the specific project .	
Period of Education	Varies.	

AR0149	ON SITE, Landscape architectonic explorations	15
Responsible Instructor	Dr.ir. I. Bobbink	
Course Coordinator	Dr.ir. I. Bobbink	
Education Period	4	
Start Education	4	
Exam Period	none	
Course Language	English	
Required for	students need to be master students	
Expected prior knowledge	design skills	
Summary	Please check the presentations on the Q4-free choice projects for more specific information about the site and the exact theme - this differs every year. In the course, we will study on how to define identity and how to transform ordinary spaces into specific places. We will experiment with different methods and tools. Depending on the theme we might operate as one group.	
Course Contents	In this course, you will learn how to analyse, interpret the spatial identity of a site and translate it into a landscape architectonic design. The scale of the assignment can differ from a garden to an (urban)landscape. Landscapes and cities with a strong identity are highly valued by people. Identity, heritage, continuity and transformation are important notions of todays design practise. In the course, we will study on how to define identity and how to transform ordinary spaces into specific places. Through fieldwork, the site will be studied across experimental analysis methods and techniques, also borrowed from other disciplines, like social sciences and art. The experimental analysis deals with questions related to a site exploration and notation and how to construct a design concept. It depicts the subjective, dynamic and intangible characteristics of the place such as: processes, cultural activities, memories, stories, experiences, rituals by for examples sensorial perception, tracing narratives, investigating historic sources, mapping spaces in various ways and working with experimental photography, etc. As a frame, the course offers an interdisciplinary debate on the theory of place making which feeds the design experiment. These design experiments can become models, films or real constructions in the public realm. The course will involve third parties, for example ongoing research in the section of landscape architecture, assignment from practise or can be part of an event like the Oerol festival on Terschelling etc.	
Study Goals	- to acquire knowledge of the physical form of a specific landscape; - to acquire and use theoretical knowledge on place making; - to study, visualise and edit the topography and spatial identity of a landscape (experimental analyses); - to build a relationship among landscape architecture and other fields of science like geology, archaeology, ecology, history, anthropology, and other creative disciplines like art, architecture and urbanism; - to design a landscape architectonic space.	
Education Method	studio work (experimenting) interactieve lectures workshops fieldwork	
Assessment	oral presentation with the help of: drawings models films or real constructions in the public realm	
Period of Education	Quarter 4	
Minimum aantal deelnemers	15	
Maximum aantal deelnemers	15	

AR0225	MSc2 Studio: Urban (Re)Development Game	12
Responsible Instructor	Y. Chen	
Course Coordinator	Y. Chen	
Instructor	Prof.dr. E.M. van Bueren	
Instructor	Dr.mr. F.A.M. Hobma	
Instructor	Mr.dr. P. Jong	
Instructor	Dr. C. Maat	
Instructor	Dr.ir. M. Spaans	
Instructor	Dr.ir. P.L.M. Stouten	
Instructor	Ir. H.W. de Wolff	
Instructor	Dr.ir. R. Binnekamp	
Instructor	Dr.ir. S. Zijlstra	
Instructor	Dr.ir. L. Volker	
Instructor	Dr.ir. R.S. van der Kuij	
Instructor	Dr.ir. T.A. Daamen	
Instructor	Dr.ir. E.W.T.M. Heurkens	
Instructor	Prof.dr. P.J. Boelhouwer	
Instructor	Drs. P.W. Koppels	
Instructor	Dr.ing. G.A. van Bortel	
Instructor	Y. Chen	
Instructor	Dr.ir. E.H. Stolk	
Instructor	Dr. W.J. Verheul	
Instructor	Ir. L.G.C. Heijnders	
Instructor	Dr. I. Nase	
Contact Hours / Week	0/0/0/X	
x/x/x/x		
Education Period	4	
Start Education	4	
Exam Period	4	
Course Language	English	
Expected prior knowledge	Semester 1 of Master course from Faculty of Architecture and the Built Environment	
Summary	The course is meant for master students from the department of Architecture and Urbanism who have not followed any economic course. During this unit course the theory and the practice of managing urban (re)development processes is explored through lectures, role-playing simulation in urban (re)development project at area scale, as well as at the portfolio and object scale. A third component is finance.	
Course Contents	The unit of course aims to train students to grasp an integral approach when managing urban (re)development both at the urban area scale and at the portfolio and object scale. Through a role-playing simulation project, students will be given design assignments that drive them to (re)develop a complex urban location with both residential and non-residential elements.	
Study Goals	<p>The assignment aims at drawing up a development plan for the location. The students, through this exercise, will play the roles of local authorities and private actors as well as third parties of the area and negotiate in their respect roles to reach an optimal solution. Students will conduct feasibility analysis of a particular real estate objective at the portfolio and object scale.</p> <p>This unit will equip students with sufficient skills to deal with the assignment in the simulation with a series of lectures and sessions of fieldwork, role assistance and group supervision. Students will learn about the context, goal, actors and means of realisation related to each phase of the urban area development cycle. In this process, students have to consider how to make a balance between market demand, spatial quality requirement with available means.</p>	
Education Method	<p>The unit aims to enable students to:</p> <ul style="list-style-type: none"> - understand the changing context of global and local environment and economic, social and cultural elements which contribute to various urban problems - understand the context, content, players and means of implementation during the cyclic phases of urban area development; identify positions, objectives and means as well as strategies of involved parties in different phases - analyze the social-economical and urban context as well as the status and function the area can possibly achieve in the future - set up functional programs for the area in question; identify spatial possibilities and, the feasibility and financial consequences of investments; develop institutional and financial plans for different phases in order to manage and oversee the development design and implementation process, thereby effectively integrating the input of the various actors in the project - conduct feasibility studies of real estate portfolio strategy with involved and/or potential stakeholders and the cost-benefit analysis of a particular building block at the object level - integrate multidisciplinary knowledge through teamwork, negotiate and communicate with different parties, present project results and reflect the development process with an analytical report 	
Literature and Study Materials	<p>The program of The Urban (Re)development Game comprises three parts:</p> <ul style="list-style-type: none"> - Theory: the knowledge of the theory on managing urban development is acquired through lectures and literature study - Practicum: the practice skills are acquired through role-playing in a management game, with support from role lectures, supporting literature and consultation provided by role assistance and group supervision. Students are asked to work on a master plan of a specific location and then examine its feasibility plan of a particular role at portfolio and object level. -Real estate finance: the knowledge of finance is acquired through lectures and literature study <p>The compulsory literature for Theory is:</p> <p>Franzen, A., Hobma, F., de Jonge, H. and Wigman, G (eds) (2011) Management of Urban Development Processes: governance, design, feasibility. Amsterdam: Technpress.</p> <p>Adams, D. & S. Tiesdell (2012), Shaping Places: Urban Planning, Design and Development. London: Routledge.</p>	
Assessment	<p>Other digital compulsory and supporting literature is available from the blackboard and is updated yearly.</p> <p>The result will be determined by:</p> <ul style="list-style-type: none"> - the theory component, assessed through individual 3,5 hour exam - the practice component, assessed through the quality of design assignment, the quality of presentation performance, the quality of argument and reflection in the end report - The finance component, assessed through assignment and exam 	

Exam Hours	Theory: 3,0 hours
Special Information	The maximum marking period is 10 work days.
Period of Education	Quarter

AR0681	Heritage and Architecture Design Studio: Research and architectural design	12
Responsible Instructor	Ir. W.L.E.C. Meijers	
Responsible Instructor	Prof.ir. W. de Jonge	
Course Coordinator	Ir. W.L.E.C. Meijers	
Instructor	Ir. W.L.E.C. Meijers	
Instructor	Dr. S.A. Stroux	
Instructor	Ir. A.C. de Ridder	
Instructor	Ir. W. Willers	
Contact Hours / Week x/x/x/x	8 hours per week	
Education Period	3 4	
Start Education	3	
Exam Period	none	
Course Language	English	
Course Contents	The chair of Heritage & Design is concerned with re-designing and researching buildings of significance in cultural-historical context. In this studio the cultural, historical, societal and urban context of a built structure are analysed and interpreted in relation with architectural and technical features. Historical development, urban context, typology, materialisation, technical elaboration and related literature are the main issues in a synchronic method of analysing and re-designing. Students individually create a re-design that shows a meaningful translation of an intervention strategy into the spatial, functional, urban, material and technical design. The design choices are based in an understanding in relation to cultural value.	
Study Goals	Upon completion of the Master 2 studio the student is able to: - draw conclusions from analyses and present these in an academically substantiated and comprehensive way, - define a relevant design brief and create an architectural redesign for a building or ensemble that he/she has chosen as an etude, - apply professional knowledge and design tools related to architecture, building technology and cultural value, - focus on moral sensibility, analysis, creativity and judgement skills regarding architectural ethics - explain and reflect on meaning and design development with relevant presentational means - communicate design ideas at an advanced level through verbal presentations, visual and written media.	
Education Method	Design coaching in studio during educational weeks. The design studio features individual and group tutorials, and study specific to the design project.	
Literature and Study Materials	To be announced via the tutor and/or the coordinator and/or Brightspace.	
Assessment	Presentations will be held during the semester and a final presentation at the end of the semester. Drawings, texts, models.	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Q1 / Q2 / Q3 / Q4: semester weeks 1.6 - 2.10 / 3.6 - 4.11	
Leerstoel	Heritage & Architecture	
Maximum aantal deelnemers	45	

AR0896	Van Gezel tot Meester		21
Responsible Instructor	Ir. E.J.G.C. van Dooren		
Responsible Instructor	L.A.M. Willekens		
Course Coordinator	Ir. E.J.G.C. van Dooren		
Contact Hours / Week x/x/x/x	160 hours per semester		
Education Period	1 2		
Start Education	1		
Exam Period	none		
Course Language	Dutch		
Course Contents	<p>Didactiek in ontwerpprojecten In een stage (Bachelor eerste jaar) leer je onder supervisie het vak van ontwerpbegeleider; de ervaring en problemen die je opdoet in de stagegroep kun je terugkoppelen in de onderwijsgroep. In enkele werkcolleges wordt onderzocht hoe studenten te begeleiden in het leren ontwerpen.</p> <p>Ontwerpvaardigheid en ontwerpproces In een aantal ontwerp oefeningen wordt het ontwerpproces expliciet onderzocht. Door het ontwerpproces enkele keren te doorlopen en specifiek te bestuderen wordt inzicht verkregen in meer algemene principes tijdens het ontwerpen en de eigen, individuele inbreng; ook valkuilen kunnen zo aan het licht komen. Zoals een topsporter op onderdelen en het geheel traint om tot meesterschap te komen, zo kan een ontwerper ook zijn eigen ontwerpproces trainen. Door het kanaliseren van gewoontes en het bewust worden van essentiële ontwerpmomenten kom je tot meesterschap in het ontwerpproces.</p>		
Study Goals	<p>De student is in staat een coherent, betekenisvol, uitgewerkt, juist en innovatief ontwerp te maken en onderzoek te doen - op hoofdlijn en in details - op Msc 2 niveau.</p> <p>Specifiek voor deze cursus: de student</p> <ol style="list-style-type: none"> 1. heeft inzicht in het (eigen) ontwerpproces en in het (ontwerp)docentschap 2. is in staat korte ontwerp opdrachten te doen en heeft de basisvaardigheden als (assistent) ontwerp docent 3. is in staat een kort onderzoek te doen naar het (eigen) ontwerpproces en de aspecten van het ontwerpdocentschap 		
Education Method	<p>- stage als assistent-begeleider in een eerstejaars ontwerpproject - ontwerponderwijs op atelier (meerdere ontwerp opgaves) - enkele werkcolleges</p> <p>Kennis en toepassing zijn tijdens het leren met elkaar geïntegreerd. De cursus is opgebouwd uit een groot praktijk gedeelte (ontwerpen / begeleiden) met op een aantal momenten compacte input van kennis en theorie.</p> <p>Het ontwerp onderwijs vindt in principe plaats op dinsdag en vrijdag middagen, en een aantal werkcolleges op woensdagmiddag - wijzigingen in verband met de stage voorbehouden De stage vindt plaats in het tweede kwartaal.</p>		
Assessment	<p>Didactiek stageverslag waarin opgenomen een observatie en een reflectie (9 studiepunten). Ontwerpresultaten en reflectie op ontwerpproces (12 studiepunten).</p>		
Special Information	The maximum marking period is 10 work days.		
Period of Education	Semester		
Maximum aantal deelnemers	hangt af van beschikbare stageplaatsen		

AR2AD010	MSc2 Dwelling design studio 'Global Housing'	12
Responsible Instructor	Ir. H.A.F. Mooij	
Course Coordinator	P.S. van der Putt	
Instructor	Prof.ir. D.E. van Gameren	
Education Period	3	
	4	
Start Education	3	
Exam Period	none	
Course Language	English	
Course Contents	The MSc 2 AR2AD010 Global Housing Studio focuses on the worldwide issue of affordable mass housing schemes. The assignment involves designing a housing project, with the aim of providing solutions that cater for the creation of socially and ecologically sustainable urban environments as an alternative to current practices of large-scale developments, public and private, based on models. Participating in the studio requires a site visit to Ahmedabad, India of approximately two weeks.	
Study Goals	Learning Goals MSc 1/2 GLOBAL HOUSING	
	After completion of this course the students is able to:	
	1. Recognise and explain morphological and typological qualities of urban housing neighbourhoods .	
	2. Formulate a design strategy for affordable housing in relation to densities, multiple user groups, access & circulation, privacy & community and patterns of daily life.	
	3. Design and develop an urban plan for affordable housing on a proposed site.	
	4. Design and develop an urban housing neighbourhood accomodating the various relations of the design strategy.	
	5. Design and develop different dwelling types in relation to specified needs and usability.	
	6. Identify and explain the qualities of the proposed design in relation to project references and experience.	
	7. Identify appropriate building techniques and construction systems to be employed as part and parcel of the design proposal.	
	8. Produce meaningful visual and physical outputs to communicate the project to an audience of experts.	
Education Method	Tutoring of the design progress in the design studio. Workshop week	
Assessment	Examination takes place in the form of a mid-term and final oral presentation of design and analysis in drawings and images, followed by an oral examination in questions and answers.	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Education starts in week 3.6 and ends in week 4.11	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR2AI010	Interiors Buildings Cities MSc2 Design Project	12
Responsible Instructor	Prof. D.J. Rosbottom	
Course Coordinator	Ir. S. Pietsch	
Instructor	Ir. M.E. Stuhlmacher	
Instructor	Ir. L.M.M. de Wit	
Instructor	M. Pimlott	
Instructor	D.H.G. Somers	
Instructor	Ir. S. Pietsch	
Instructor	Ir. J.S. Zeinstra	
Instructor	Ir. drs. E.P.N. Schreurs	
Instructor	S.S. Mandias	
Instructor	Prof. D.J. Rosbottom	
Contact Hours / Week	4 hours per week	
x/x/x/x		
Education Period	1	
Start Education	2	
Exam Period	3	
Course Language	English	
Summary	<p>The Chair of Interiors Buildings Cities is concerned with making buildings, in places, for people. It conceives of the city, at each scale, as a work of architecture and, hence, the responsibility of the architect. This developing discussion of the chair is contextualised through an annual theme.</p>	
Course Contents	<p>The MSc2 course, Thinking through Making, encompasses design research investigations into thinking about, making and representing architecture, up to and including 1:1 scale.</p>	
Study Goals	<p>The MSc2 programme is a platform for special research and design projects proposed by members and associates of the Chair of Interiors Buildings Cities. At the heart of each of these projects, renewed every semester, is a research question or opportunity that yields possibilities for responses through design, and realised in tangible artefacts or models.</p>	
Education Method	<p>Upon completion of the Master 1, 2, 3 & 4 studio trajectory the student:</p> <ul style="list-style-type: none"> - Has developed the skills in architectural design satisfying both aesthetic and technical / functional requirements. During the trajectory the complexity of the architectural design increases leading to a level fit for architectural practice and a training period for professional accreditation as architect. - During this trajectory skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology and human sciences. - Additionally, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and society's needs, including environmental aspects. - During Master 1, 2, 3 & 4 process skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing. - Together with the training with regard to aspects of building technology, during the Master 1, 2, 3 & 4 process skills are acquired to incorporate an understanding of the design process with regard to structural design, materialization of buildings and interiors, comfort and climate design. 	
Literature and Study Materials	<p>A specific description of the aims of the studios will be published in the Studio Manual, to be distributed at the beginning of the course.</p>	
Assessment	<p>The design studio features individual and group tutorials, and study specific to the design project as well as several dedicated thematic exercises, internal lectures and seminars that pertain to and inform the subject.</p>	
Special Information	<p>to be announced upon beginning of the course</p>	
Period of Education	<p>Assessment will focus on the research work undertaken by the individual student within the set theme; the specific research questions raised within; the specific design study that responds to those questions; the representation of that study in a physical artefact made by the student.</p>	
Leerstoel	<p>Products: models up to 1:1 scale; drawings / texts if applicable</p>	
Course evaluation	<p>The project will be assessed on:</p> <ul style="list-style-type: none"> - the position that is formulated with regard to the brief and its context; the contribution to a collective discourse. - the appropriateness of the intervention with respect to the assignment; the feasibility and translatableability of the idea into a physical manifestation. - aesthetic and technical / functional qualities; the elaboration throughout the respective scales - the quality of the presentation, the products and the argument. - the consistency and coherence and development of the students work during his / her process 	
Special Information	<p>The maximum marking period is 10 work days.</p>	
Period of Education	<p>The project starts in week 6 of the first quarter and extends towards the end of the semester. An introduction meeting will take place at the beginning of the semester.</p>	
Leerstoel	<p>Interiors Buildings Cities</p>	
Course evaluation	<p>For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/</p>	

AR2AP012	MSc2 Public Building Design Studio	12
Responsible Instructor	Dr.ir. M.G.H. Schoonderbeek	
Responsible Instructor	Dr.ir. S. Komossa	
Course Coordinator	S. Milani	
Course Coordinator	Ir. A.M.F. van Dam	
Instructor	Ir. F. Geerts	
Instructor	Dr.ir. S. Komossa	
Instructor	Ir. M.J. de Haas	
Instructor	Ir. A.M.F. van Dam	
Instructor	Dr.ir. M.G.H. Schoonderbeek	
Instructor	S. Lee	
Instructor	O.R.G. Rommens	
Instructor	A.S. Alkan	
Instructor	N.E.A.I. Deboutte	
Instructor	N. Marzot	
Instructor	S. Milani	
Contact Hours / Week x/x/x/x	8 hours per week	
Education Period	3	
Start Education	4	
Exam Period	3	
Exam Period	none	
Course Language	English	
Course Contents	<p>A-PB's MSc. 2 studio focuses on the conditions under which architecture operates through the limits of global urbanization and emerging contexts, as well as interdisciplinary processes that blur disciplinary bounds. These conditions allow for elaboration on formal expressions of the architects position in regard to both the disciplinary context and the breach of the disciplinary boundaries themselves.</p>	
Study Goals	<p>Architecture distinguishes itself from mere building: it aspires to accomplish above and beyond meeting necessities and to provide something out of ordinary. We can surmise that architecture stipulates "exceptions" that set itself apart from everyday built environment. Therefore, architecture deals with specificity rather than generality.</p>	
Study Goals	<p>A-PB's MSc. 2 design studio aims to initiate various design agendas from the specificities and/or exceptionalities of a particular material culture of a place arriving at a fully elaborated architectural design. The studios hinge around the specificities through which the students are confronted with singular aspects of different situations. By elaborating on the core issues and eventually defining their own design positions, students are expected to implement their research into design practice within the collective framework.</p>	
Study Goals	<p>The sites and urban conditions that vary each year provide testing ground for diverse scales of inquiry, intervention, analysis and cultural perspective. Architectural means, instruments and techniques provide operative interface but also focus on a set of precisely delineated a priori as compositional constraints. Hence design research is exercised by and within the instruments, techniques and languages of architectural design.</p>	
Study Goals	<p>The cities of the design groups will be announced shortly before the enrollment period starts. Each enrolled student will have an opportunity to choose the group of his/her preference.</p>	
Study Goals	<p>Each city-group requires an excursion abroad. The excursion may cost around 400 or more per person for transport, lodging and other expenses depending on the location.</p>	
Study Goals	<p>Learn to design an architectural object that meets aesthetic as well as technical and functional requirements.</p>	
Study Goals	<p>Understand the relationship between architectural work and its context, as well as the ways to relate architectural experimentation to culturally conducive urban environment.</p>	
Study Goals	<p>Understand the role of architects and architecture in society.</p>	
Study Goals	<p>Develop the ability to clarify a design project to others by means of images, spoken and written words.</p>	
Education Method	Studio: 112 hours	
Education Method	Lectures: 8 hours	
Education Method	Independent study: 216 hours	
Assessment	Studio attendance & participation	
Assessment	Excursion participation	
Assessment	Mid-term (week 4.2) and final (week 4.10) reviews	
Assessment	(Specific weeks & dates of the presentation may be subject to change according to the official academic calendar of the university.)	
Special Information	<p>The studio work may include and be supplemented by charrettes, informal/intermediate reviews, as well as by supplementary lectures and workshops.</p>	
Special Information	<p>Shortly prior to the beginning of the semester, each student will have an opportunity to choose and sign up for one of the city-groups. The student must select and express the first, second and third preferences. When the preferences are missing, the student will be randomly assigned to a city-group.</p>	
Special Information	<p>After the city-studio selection process, each student will also be given an opportunity to switch places 1:1, if necessary and at the discretion of the studio instructors.</p>	
Special Information	<p>During the first half of the semester, until the midterm review, the students will work in groups.</p>	
Special Information	<p>The maximum marking period is 10 work days.</p>	
Special Information	<p>For more information, contact: pb-edu-bk@tudelft.nl</p>	

Period of Education	Semester
----------------------------	----------

AR2AT020	Agential Materialism Architecture Theory Design Studio	12
Responsible Instructor	Dr.ir. H. Sohn	
Course Coordinator	Dr.ir. H. Sohn	
Instructor	Dr.ir. A. Radman	
Instructor	Dr.ir. H. Sohn	
Instructor	Dr.ir. S. Kousoulas	
Instructor	Dr. A. Altes Arlandis	
Contact Hours / Week x/x/x/x	8 hours per week	
Education Period	4	
Start Education	4	
Exam Period	none	
Course Language	English	
Required for	This course is an elective choice for the required MSc2 studio credits.	
Expected prior knowledge	Students with interest and motivation in theoretical and conceptual aspects of architecture design are encouraged to join this studio.	
Course Contents	<p>The Architecture Theory Studio Agential Materialism is a design studio with a strong theory component that engages architecture as a material-discursive practice, in which the conceptual and the non-conceptual (theory & design) are regarded as fully agential and relational: they happen and emerge in the same space-time-matter continuum. In our studio we will investigate conceptual terms such as matter, objects, things, bodies, as well as the notions of process, change, emergence and agency, among many others, as a means to investigate their application and potential for architecture design. Our studio explores the power of concepts as methods for practice, and experiments with the affective capacities of matter as fundamental in the genesis of form.</p> <p>The thematic and design assignments of our studio vary, but always depart from actions rather than programmatic or functional prerequisites, foregrounding the potentials of architectural, material and spatial agencies involved in the design process.</p> <p>This studio is highly experimental and hands-on in regards to the material aspects of theory as practice. It welcomes students who are inclined to explore unfamiliar (yet exciting) themes, raise interesting questions and problems, and experiment with ideas and matter to make their design practice and skills more meaningful.</p>	
Study Goals	<p>After completion of this design studio the participants will:</p> <ul style="list-style-type: none"> have a solid base of knowledge on recent literature in the humanities and the social sciences and their relation to architecture practice and theorization have acquired solid knowledge-base to discern theoretical, analytical and synthetic methodologies and their application in the design process. have developed a deeper understanding of the relationships, potentials and interactions of different agents involved in any design process. have developed experimental and innovative design skills through conceptual, abstract and theoretical thinking. have experimented with different media and tools as aids for the communication of architectural proposals and ideas. have acquired research skills, and will be able to apply these in reflections and theoretical argumentation of their design projects. will have acquired understanding of the societal, cultural, technological and ethical dimensions of a design process that includes human and non-human actors alike. 	
Education Method	<ul style="list-style-type: none"> monthly lectures and weekly theory seminars discussion on related themes weekly design studio reviews presentations (interval & final) with visiting critics 	
Course Relations	<p>This course is compatible with the Architecture Theory Thesis course (AR2AT030). We encourage students to follow both courses in the same semester.</p> <p>Students wishing to participate in both courses are advised to register in the enrolment period for the Spring semester.</p>	
Literature and Study Materials	<p>Study material, reading lists and other relevant course-related literature will be made available to the students prior to the first meeting.</p>	
Prerequisites	<p>Students wishing to participate in this course are strongly recommended to have completed the necessary credits for MSc1.</p>	
Assessment	<ul style="list-style-type: none"> methodology development architectural design proposal theoretical reflection 	
Special Information	<p>This course is highly compatible with the Architecture Theory Thesis (AR2AT030). Students wishing to follow this studio are advised to enrol in both courses. Please note that the courses have different education periods (Q1/3 & Q4 respectively)! For questions please contact our student assistants or the academic coordinator at AT-MSc-BK@tudelft.nl</p>	
Elective	Yes	
Tags	<ul style="list-style-type: none"> Abstract Adventurous Design Group work Intensive Process Research Methods 	
Period of Education	This studio is offered only in Q4 (Spring term) of each academic year.	
Leerstoel	Architecture Theory Chair	
Maximum aantal deelnemers	20 students	

AR2CP010	MSc2 Complex Projects Design and Research Studio	12
Responsible Instructor	Prof.ir. C.H.C.F. Kaan	
Course Coordinator	M. Triggianese	
Contact Hours / Week x/x/x/x	80 hours per Quarter	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	BSc and MSc 1 completed	
Course Contents	<p>AMBITION In Master 2 we focus on Cities. This research and design studio promotes broad speculation, independent thinking, collective work with the aim of positioning architecture into a broader social, cultural, political, and economic context. Through the various themes, students are exposed to the versatile layers of the city, while simultaneously expected to engage their observations with daily studio work. Understanding the hard and soft layers, that actually define the values of a contemporary city, can lead towards ambitions to follow. After forensic analysis of the layers, a new framework will be developed for the project area that will be extracted and developed in detail.</p> <p>EVALUATION Evaluations will be based on the research approach, dedication, commitment, effort and improvement of the team in the investigation of the City (and the project area). Concrete aspects for evaluation are: research work, clarity of the problem statements, originality of the final presentation. Please contact the course coordinator for the specific programme / cities of the semester.</p> <p>Study Goals The student: Has developed the skills in architectural design satisfying both aesthetic and technical/functional requirements. During the trajectory the complexity of the architectural design increases leading to a level fit for architectural practice. During this trajectory, skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology and human sciences. Additionally, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and societies needs, including environmental aspects. During MSc1, 2, 3 & 4 process skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing.</p> <p>Education Method Besides studio program students are expected to fully engage with events and people which the sites have to offer. Workshops, lectures, tours and travels are included in the studio programme.</p> <p>Assessment Midterm presentation including research, argument and concept. Final presentation with posters and research booklet. Additional visualisation tools can be used, such as video, reportage, models.</p> <p>Special Information As part of the Complex Projects objective, the search for definition of city guides the Design and Research studio, 'IN Cities' studio in its most direct way. Please contact the studio coordinator to know this year's case studies.</p> <p>Period of Education Semester</p> <p>Leerstoel Complex Projects, department of Architecture</p> <p>Minimum aantal deelnemers 12</p> <p>Maximum aantal deelnemers 16</p> <p>Course evaluation For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/</p>	

AR2FM010	The Delta Shelter	12
Responsible Instructor	P.A. Koorstra	
Course Coordinator	P.A. Koorstra	
Education Period	3 4	
Start Education	3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	BSc and Master 1	
Course Contents	<p>The assignment is to design a small project in a Delta environment; a dynamic and natural surrounding on the border of water and land.</p> <p>The infinity of the location and the constant changing conditions invite to research the meaning of boundaries and the integration of the landscape in the design. The experience of the specific and poetic qualities of this environment will be one of the explicit themes in this course; the contradiction between the human scale and the unrestricted landscape, the influence of wind and tide, the flora and fauna and the position of human within this often vulnerable ambience.</p> <p>The role, impact and contribution of architecture in such places is part of the research in this assignment. More specific the typology and manifestation of the architecture will be discussed and developed on the basis of the design proposals. The ethics and aesthetics of architecture will be discussed regarding questions as; What are the necessary conditions for architecture to give a satisfying contribution to this environment? Is it inevitable that architecture is a disturbing factor, can it only be of temporary presence, or can architecture contribute to the appreciation and preservation of these kind of environments?</p> <p>The project will be developed by using physical scale models, hand sketches and text during all the phases of the design process; the analysis, design and presentation. The aim of this method is to stimulate the creative process by using the physical model and drawing as a feedback and inspiration tool to develop the concept into a design.</p>	
Study Goals	<p>-The student will gain competence is conducting design research and research-by-design by using physical models and hand drawings as a tool throughout the design process.</p> <p>-The student will gain insight in collaborating and communicating by making active use of various scale models to present the design in all its aspects; the architectural composition, materialisation and integration of construction.</p> <p>-The student will be able to communicate his contemplations and reflect on the role and position of the architect in this assignment.</p>	
Education Method	lectures and design studio format. Weekly assistances in groups as well on individual basis.	
Assessment	<p>Assesment on the basis of process, analysis, documentation and (re)presentation of the end result. A brief reflective statement of max 450 words is part of the assesment.</p> <p>Presentation will contain a variety of physical models, drawings, photographs and text.</p> <p>The products should give a clear insight in spatial design, the construction and the relation and meaning of the design towards its environment.</p> <p>The student has achieved a sufficient result on scale 1 to 10 with 6, has the possibility to take a resit with a mark between 5 and 6 and failed with 4,9 or minor. Resit has to be completed within 2 weeks after completion the studio.</p>	
Special Information	coordinator	
Remarks	A site visits can be part of the studio	
Period of Education	Q3 & Q4, 15 weeks, starting in week 3.6	
Leerstoel	Form & Modelling Studies, Architecture	
Minimum aantal deelnemers	12	
Maximum aantal deelnemers	32	

AR2MET010	Transdisciplinary Encounters	12
Responsible Instructor	Dr.ir. P.J. Teerds	
Responsible Instructor	Dr.ir. K.M. Havik	
Course Coordinator	Dr.ir. P.J. Teerds	
Instructor	Dr.ir. P.J. Teerds	
Contact Hours / Week x/x/x/x	4 hours per week	
Education Period	4	
Start Education	4	
Exam Period	none	
Course Language	English	
Course Contents	<p>The field of architecture holds a broad set of research and design methods, but also has the capacity to productively engage with approaches and perspectives from other fields that deal with the built environment such as literature, arts, cinema, philosophy, psychology, and social sciences. In contemporary architectural practice several architects (Steven Holl, Peter Zumthor, Bernard Tschumi, Rem Koolhaas) have used these productive encounters and exchanges with other fields to reorient architectural analysis and design.</p>	
	<p>The Msc2 studio Transdisciplinary Encounters offers a site of exploration for students interested to pursue the possibilities of the encounter between the architectural practice and other disciplines. These may be artistic disciplines, providing instruments such as literary description, narrative, montage and scenario writing, or disciplines from social sciences, providing fieldwork techniques related to social spatial practices and user behaviour. The studio encourages students to develop experimental methods of analysis and design in order to obtain new design solutions.</p>	
	<p>This studio is dedicated to the exploration of a broader scope upon the built environment by using encounters and exchanges with methods from other disciplines. It focuses on the implementation of investigative and creative methods from these fields, particularly focussing on site research and how such new methods and ways of looking can be implemented within the field of architecture.</p>	
	<p>The studio exercise will depart from specific and extensive fieldwork methods, and aims to carry out a site-specific analysis with experimental techniques. Results from the site analysis will be brought to the field of architecture step by step, in order to lead to architectural or urban strategies of intervention.</p>	
Study Goals	<p>the student:</p> <ul style="list-style-type: none"> -becomes acquainted with approaches from other disciplines such as literary, artistic and cinematographic practices, or social science disciplines -learns to conduct field work on site -learns to use and develop experimental methods of analysis and design -implements investigative and creative methods from these fields to conduct site research and develop urban or architectural strategies for a given site 	
Education Method	<p>Combined seminar and studio; in-situ fieldwork. Through experimental in-situ fieldwork the studio will develop tools in order to understand and address the issue of the public realm of a specific city, area or neighbourhood. To do so, during the studio students will adopt and adapt techniques from different other scientific or artistic fields that adjust the profession of architecture, like social geography, anthropology, sociology, and philosophy or sculpture, literature, and cinema. Through these investigations, detailed quantitative and qualitative mappings can be drawn, based on statistical analyses, socio-historical research and in-depth interviews. Depending on the specific approach of the studio, these techniques can be combined with particular drawing techniques such as the section, the softmap and the collage. The site research will thus result in evocative and speculative drawings, models, texts, and films. In a concise presentation the students are requested to evoke their projects and visions on a larger urban scale, as well as to propose site-specific interventions.</p>	
Assessment	<p>For this elective course, the process and the development of appropriate tools for fieldwork and the students reflection upon these methods and the results of the fieldwork will be assessed through mid-term presentations and a final presentation. Criteria are focussing on the consistency of the project: the relation between methods, research findings and urban or architectural strategy.</p> <p>The students are expected to bring their work together in a collective book, thereby showing the broad perspective of site investigations and developed strategies. For the final presentation, representatives from the given site and disciplinary field will be invited as guest critics.</p>	
Elective	Yes	
Tags	Research Methods	
Period of Education	Quarter	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

MSc1 Design Projects

AR1AD011	Dwelling Design Studio: 'The Netherlands'	12
Responsible Instructor	Ir. P.S. van der Putt	
Course Coordinator	Ir. P.S. van der Putt	
Instructor	Ir. P.A.M. Kuitenbrouwer	
Instructor	Ir. O. Klijn	
Contact Hours / Week x/x/x/x	112 hours per semester	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Course Contents	<p>Students of the Dutch Housing Studio design a residential complex in an urban environment in the Netherlands. The design is accompanied/preceded by research into the design assignment and the specific topics of the studio.</p> <p>Each semester the design assignment may be different from the one before. Oftentimes there are two studio options (however, the chair reserves the right to cancel an option if there is a lack of interest from students).</p> <p>Though topics may vary from one semester to the next, at the core of each studio lies the design of dwellings and of the dwelling environment, complemented by research and literature study. Design work is done individually, while some of the research may be performed in teams.</p> <p>Topics of the Studio may include (but are not limited to) the inclusive city, work-live combinations, projects for specific target groups, and small scale interventions. More specific information about the design assignment of the upcoming semester can be found on the website and at the Master-information meetings that take place twice a year.</p> <p>All MSc 1 Dwelling students will take part in a site excursion as well as a workshop or master class revolving around the theme of the studio. The studio is not available for MSc 2 students. MSc 1 students are required to also enrol in Architectural Studies (AR1AD030) and Architectural Reflections (AR1AD040).</p>	
Study Goals	<p>Upon completion of the course the student is able to</p> <ul style="list-style-type: none"> design a sketch version of an urban plan for a given area in terms of massing, program and zoning. design a complex residential building with additional functions, subscribing to the functional demands of the brief and the spatial, structural, technical and aesthetic requirements of architecture. design several dwellings that suit functional demands of their respective target groups. perform research of precedent projects and to demonstrate their impact on his/her own design. develop and compare design alternatives. critically reflect on the assumptions and starting points of the brief. convey his/her design ideas by way of (oral) presentations. critically reflect on his/her own design process. 	
Education Method	Studio: 70 hours Self-study: 266 hours	
Assessment	<p>Presentations will be held throughout the semester; assessment by way of final presentations at the end of the studio. Exact requirements to be announced at the start of the studio.</p> <p>The final grade (F) for AR1AD011 will be a weighted average of the Architecture grade (A) and the Building Technology grade (BT), such that $0,8 \times A + 0,2 \times BT = F$. Both A and BT will be rounded to half or whole points. The final grade will be rounded to one decimal place.</p>	
Special Information	The maximum marking period is 10 working days.	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1AE010	EXTREME architecture	12
Responsible Instructor	Prof.dr.ing. U. Knaack	
Course Coordinator	Ir. R. Schroën	
Contact Hours / Week x/x/x/x	12 hours per week	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Course Contents	<p>The project is about building in a extreme situation, in respect to climate, location and function. Essence is the interaction between the extreme circumstances, the technical solutions, and the architecture. Extreme circumstances do request technical solutions which will be the starting point for the design development. The designer has to direct the 'engineer questions and answers', towards the articulation of the form which is based on integration of aesthetic and technology.</p>	
Study Goals	<p>For this project we will be focussing on the Maldives: a group of atolls which is expected to disappear below the rising sea level. How can we use architecture and engineering to preserve this community?</p>	
	<p>"Die Architektur des 21 Jahrhunderts hat ihre Unschuld verloren, Gebaude müssen etwas leisten" Stefan Behnisch.</p>	
	<p>In the end the student is able to understand technical solutions, to reflect on them, to applicate them and to transform them. And the student is able to design a coherent design result.</p>	
	<p>Upon completion of the MSc1, 2, 3 & 4 studio trajectory the student:</p>	
	<p>Has developed the skills in architectural design satisfying both aesthetic and technical/functional requirements. During the trajectory the complexity of the architectural design increases leading to a level fit for architectural practise.</p>	
	<p>During this trajectory skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology and human sciences.</p>	
	<p>Additionally, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and societys needs, including environmental aspects.</p>	
	<p>During MSc1, 2, 3 & 4 process skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing.</p>	
	<p>Together with the training with regard to aspects of building technology, during the MSc1, 2, 3 & 4 process skills are acquired to incorporate an understanding of the design process with regard to structural design, materialisation of buildings, comfort and climate control.</p>	
	<p>In the end the student is able to design a healthy coherent building in extreme conditions with a focus on technical solutions: the student is able to apply, reflect and transform principles concerning climate, construction and structure.</p>	
Education Method	Design project	
Assessment	The design result including the aspects structure, climate and envelope.	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1AI010	Interiors Buildings Cities MSc 1 Design Project	12
Responsible Instructor	Prof. D.J. Rosbottom	
Course Coordinator	Ir. S. Pietsch	
Instructor	Ir. M.E. Stuhlmacher	
Instructor	Ir. L.M.M. de Wit	
Instructor	M. Pimlott	
Instructor	D.H.G. Somers	
Instructor	Ir. S. Pietsch	
Instructor	Ir. J.S. Zeinstra	
Instructor	Ir. drs. E.P.N. Schreurs	
Instructor	S.S. Mandias	
Instructor	Prof. D.J. Rosbottom	
Contact Hours / Week x/x/x/x	4 hours per week	
Education Period	1	
	2	
	3	
	4	
Start Education	1	
	3	
Exam Period	none	
Course Language	English	
Summary	<p>The Chair of Interiors Buildings Cities is concerned with making buildings, in places, for people. It conceives of the city, at each scale, as a work of architecture and, hence, the responsibility of the architect. This developing discussion of the chair is contextualised through an annual theme.</p> <p>The MSc1 course, The House in the City, considers detailed material and spatial programmes for proto-typical city buildings with the intention of nurturing architectural sensibilities in students that are attuned to context, users, relations, appearances, spaces and interiors, materiality, and construction.</p>	
Course Contents	<p>MSc 1 is structured as a series of parallel studios, run by a dynamic mix of practitioners and academics and collectively concerned with interpretations of a common theme, the House in the City. Understood ambiguously, as in the German Haus, the concerns of the course are not the representative monuments of culture, nor the private houses of individuals. Instead, projects explore those buildings that stand between, housing our collective urban life and oscillating, in our consciousness, between foreground and background. Carefully wrought, spatially rich, generous and adaptable, such buildings have the capacity to evolve over time and to engage in a territory that might encompass both extended domestic and intimate public life. As discrete elements, subservient to a larger whole, they play small but significant roles in structuring urban fabric and defining urban space, simultaneously taking pleasure in the heterogeneity of the contemporary city and bringing it into order.</p> <p>Through individual projects, each studio addresses how such city houses might be made, experienced and inhabited, in time and space and in response to the particularities of place. Through careful drawing and iterative making, their individual characters emerge in a welcoming interior, through a moment of figuration or in the refinement of a façade.</p> <p>The contents of the individual studios will be published at the beginning of the semester. Students are asked to indicate their preference for one of them. Usually the studios include a 2-3-day excursion to a location relevant to the project. The corresponding information will also be communicated at the start of the semester.</p> <p>The MSc1 Design Project (Ar1Ai010) is conceived in conjunction with the Fundamentals course (AR1Ai040). Students are required to enrol to both courses.</p>	
Study Goals	<p>Upon completion of the Master 1, 2, 3 & 4 studio trajectory the student:</p> <ul style="list-style-type: none"> - Has developed the skills in architectural design satisfying both aesthetic and technical / functional requirements. During the trajectory the complexity of the architectural design increases leading to a level fit for architectural practice and a training period for professional accreditation as architect. - During this trajectory skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology and human sciences. - Additionally, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and society's needs, including environmental aspects. - During Master 1, 2, 3 & 4 process skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing. - Together with the training with regard to aspects of building technology, during the Master 1, 2, 3 & 4 process skills are acquired to incorporate an understanding of the design process with regard to structural design, materialisation of buildings and interiors, comfort and climate design. <p>A specific description of the aims of the studios will be published in the Studio Manual, to be distributed at the beginning of the course.</p>	
Education Method	<p>The design studio features individual and group tutorials, and study specific to the design project as well as several dedicated thematic exercises, internal lectures and seminars that pertain to and inform the subject.</p> <p>A characteristic working method of the Chair is the building of physical models of varying scales in which ideas about the design project are tested and materialized.</p>	
Literature and Study Materials	To be announced upon beginning of the course	
Assessment	<p>The design studio concerns the development of an architectural project on all scale levels, from its urban setting to its materiality and elaboration of its details. The project will be assessed during an intermediate, pre-final and final presentation on its:</p> <ul style="list-style-type: none"> - the position that is formulated with regard to the brief and its context - the appropriateness of the intervention with respect to the assignment - aesthetic and technical / functional qualities - the elaboration throughout the respective scales - the integration of the disciplines included - the quality of the presentation, the products and the argument. - the consistency and coherence and development of the students work during his / her process <p>The products to be assessed include the design proposal represented through drawings, models and text; the project journal and</p>	

	the portfolio.
	The final grade consists of partial grade of 80% for Architecture and 20% for Building Technology. Both grades need to be sufficient for the student to pass.
Special Information	The maximum marking period is 10 work days.
Period of Education	Semester
Leerstoel	Interiors Buildings Cities
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/

AR1AR011	Heritage and Architecture Design Studio: Architectonic Design	12
Responsible Instructor	Ir. W. Willers	
Course Coordinator	Ir. W. Willers	
Instructor	Ir. A.W. Hermkens	
Instructor	Ir. W. Willers	
Contact Hours / Week x/x/x/x	8 hours per week	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Summary	The design assignment focuses on the intervention at existing buildings or ensembles to meet requirements of contemporary and future use. The design process will be guided by exploring design possibilities and architectural consequences of the design.	
Course Contents	<p>The object of this Heritage & Architecture studio is the architectural design for the re-use of a building or building-ensemble to meet requirements of contemporary and future use.</p> <p>A transformation framework will be made by the interpretation of the analysis of the urban context, the building and the program requirements. Various aspects of designing in existing built structures are investigated by studying reference projects and literature.</p> <p>By working on different scale-levels a coherent design will be made. At atelier meetings different aspects like relation existing new, urban context, functionality, spatial quality, technical aspects, material aspects will be discussed.</p> <p>Different presentations will help students to develop their presentation skills.</p> <p>The current debate of transformation and intervention with topics like authenticity, sustainability, layers of history, and so on is very present during this course on every single scale.</p>	
Study Goals	<p>Upon completion of the Master 1 design project the student is able to:</p> <ul style="list-style-type: none"> - interpret cultural values on urban, architectural and technical scale and create a transformation framework, - translate a transformation framework to a design strategy, and a design strategy to an elaborated design, - incorporate aspects in the field of architectural history and architectural theory, art, society's needs, human sciences and environmental aspects. - make a design satisfying functional, aesthetic and technical requirements, - position the project in the discourse, - explain the architectural design during a presentation by combining oral, written and graphic media (e.g., drawings, models) 	
Education Method	Design coaching, 4-8 hours counseling per studio during educational weeks, total 112 hours. Self study: total 224 hours.	
Literature and Study Materials	Will be delivered by the tutor and/or coordinator, or via Brightspace	
Assessment	Research booklet Presentation at the end of the semester	
Special Information	Presence at the first meeting is mandatory. For the assessment the presence during the course and the overall design process will be taken in consideration.	
Period of Education	Semester	
Leerstoel	Heritage & Design	
Minimum aantal deelnemers	12, minimum group 8 students	
Maximum aantal deelnemers	48	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1CP010	Complex Projects Design Studio	12
Responsible Instructor	Prof.ir. C.H.C.F. Kaan	
Course Coordinator	M. Triggianese	
Instructor	Ir. A.T. Richters	
Instructor	S. Filippas	
Contact Hours / Week x/x/x/x	80 hours per semester	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	BSc degree Architecture	
Course Contents	<p>As introduction to Complex Projects, this design studio, 'Landmark', has the ambition to make students familiar with the multiple aspects that define a building. Landmark assignment aims for developing skills in the scientific method of analysis and synthesis. Via anatomical dissection, students learn to identify soft and hard aspects of a building while placing them in the bigger frame of the total composition of the building and its context.</p> <p>The studio promotes broad speculation, independent thinking, collective work with the aim of positioning architecture into a broader social, cultural, political, and economic context. Students will perform a thorough urban research in order to understand the areas history and context, and to identify the Landmarks that could become catalyst for intervention. The research zooms in from the large scale of the city itself, to the medium scale the site, to the small scale of the building. The resulting data has to be organized into a comprehensive research book. This serves as basis for forming a narrative which is leading for the individual redesigns of the Landmark.</p> <p>The seminar AR1CP040 (Anatomy) is fully integrated with the studio. An educational trip / excursion with on-site workshops is part of the studio program. Please contact the studio coordinator to know this year's case studies.</p>	
Study Goals	<p>Upon completion of the MSc1, 2, 3 & 4 studio trajectory the student:</p> <ul style="list-style-type: none"> Has developed the skills in architectural design satisfying both aesthetic and technical/functional requirements. During the trajectory the complexity of the architectural design increases leading to a level fit for architectural practice. During this trajectory, skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology and human sciences. Additionally, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and society's needs, including environmental aspects. During MSc1, 2, 3 & 4 process skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing. Together with the training with regard to aspects of building technology, during the MSc1, 2, 3 & 4 process skills are acquired to incorporate an understanding of the design process with regard to structural design, materialization of buildings, comfort and climate control. 	
Education Method	Tutorials in studio. Research will be done in thematic groups, design is either individual or in groups of max 2 students.	
Reader	Reader (syllabus) with the studio programme, the basic literature and the weekly schedule will be provided prior to start studio	
Assessment	<p>Monthly pin ups showing research, argument and concept.</p> <p>Trial presentation two weeks prior to the final presentation. The overall work has to be finished by then. Final presentation composed of research books (with critical investigations and site-analysis) and design studio book (with design projects) and digital presentation.</p>	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Semester	
Leerstoel	Complex Projects, department of Architecture	
Minimum aantal deelnemers	16	
Maximum aantal deelnemers	32	
Course evaluation	<p>Evaluations will be based on the overall performance within the studio. The students performance will be determined by the quality of his/her work, commitment, teamwork, effort and improvement over the entire course of the semester. Concrete aspects for evaluation are; research work, argument formulation, translation argument into concept, urban plan, architectural design, presentation.</p> <p>For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/</p>	

AR1MET010	Ways of Doing	12
Responsible Instructor	Dr.ir. K.M. Havik	
Course Coordinator	Dr.ir. P.J. Teerds	
Instructor	Dr.ir. P.J. Teerds	
Instructor	Dr.ir. W.W.L.M. Wilms Floet	
Contact Hours / Week x/x/x/x	8 hours per week	
Education Period	1 2	
Start Education	1	
Exam Period	none	
Course Language	English	
Summary	<p>The studio Ways of Doing aims to develop and assess distinct methods that allow for innovative way of analysis, architectural design, and spatial intervention in challenging (post-)industrial regions in the Low Countries. Every semester a different site to work on is chosen. These (post-)industrial areas often are dominated by characteristic constructions and buildings: huge installations, factories, warehouses and offices, some still in use, others empty. Particularly in the post-industrial sites, often social questions and signs of foreclosure dominate both the political and the physical landscape. Cities make redevelopment plans, although often it is quite difficult to find the right program and approach in order to revitalise such areas as the local economy.</p> <p>The aim of education in the Methods & Analysis MSc1 studio is to merge analysis and design extensively, in order to face difficult architectural, spatial, technological, social and political questions that dominate these (post-)industrial landscapes.</p>	
Course Contents	<p>From Otto Wagner to Aldo Rossi and Robert Venturi, architects have always developed new approaches and tools to react to changing urban conditions. The studio Ways of Doing wants to position itself within this architectural tradition and asks: Which toolbox can we cultivate to confront new urban ecologies like (post-)industrial landscapes? Through particular assignments, it aims to develop and assess distinct methods that allow for innovative way of analysis, architectural design, and spatial intervention in the challenging reality of (post-)industrial landscapes in various cities in The Netherlands and Belgium. Each semester another site is chosen to be investigated. These (post-)industrial areas often are dominated by characteristic constructions and buildings: huge installations, factories, warehouses and offices, some still in use, others empty. Particularly in the post-industrial sites, often social questions and signs of foreclosure dominate both the political and the physical landscape. Cities make redevelopment plans, although often it is quite difficult to find the right program and approach in order to revitalise such areas as the local economy. Students investigate the spatial, social and political situation by studying particular themes, like the atmosphere, the infrastructure, public space, as well as by using specific methods of analysis and design, like soft-mapping and drawing sections, or developing narratives or spatial poems. Analysis, in this particular perspective, is extensively part of the design-approach that the student will develop during the studio. Part of this approach also is the choice of location, program and aim of a spatial intervention in the area of study.</p>	
Study Goals	<p>Upon completion of the Master 1, 2, 3 & 4 studio trajectory the student:</p> <ul style="list-style-type: none"> - Has developed the skills in architectural design satisfying both aesthetic and technical / functional requirements. During the trajectory the complexity of the architectural design increases leading to a level fit for architectural practise. - During this trajectory skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology and human sciences. - Additionally, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and societies needs, including environmental aspects. This includes moral decision and argumentation skills regarding architectural ethics, especially when addressing social, political, environmental and technological issues. - During Master 1, 2, 3 & 4 process skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing. - Together with the training with regard to aspects of building technology, during the Master 1, 2, 3 & 4 process skills are acquired to incorporate an understanding of the design process with regard to structural design, materialisation of buildings, comfort and climate control. 	
Education Method	<p>The msc1 studio Ways of Doing takes up the task to investigate new tools and methods to address the challenging paradox of historical presence on the one hand, and large new developments on the other. The studio does so by constantly shifting to different methods, in order to look at the site and the research question from various perspectives, which can vary from strict architectural towards technological, and from spatial to political perspectives.</p> <p>During the course, different methods will be applied: from fieldwork to investigations by means of narrative or sections; from material explorations to the development of sequences of use; by focussing on building-technological aspects or on atmospheric aspects of spaces; from focusing on basic architectural elements such as floor, wall and roof, to articulating structural aspects like repetition and hierarchy.</p> <p>Students will start to work in small groups on distinct research themes the result of these investigation is understood as the share knowledge base that is developed in the studio. Based on these insights, the students either continue to work in groups or work individually on the proposal of a spatial intervention in a location of choice.</p>	
Course Relations	<p>This design studio is accompanied by two theoretical seminars, Architectural Tools (AR1MET030) and The Roles of the Architect (AR1MET040) that respectively investigate the instruments used by architects to develop their plans and ideas, and how these affect the very outcome of the design-process, and explore the various roles architects can take within contemporary practices and society.</p>	
Assessment	<p>The course is assessed through a mid-term review and a final presentation of the project. However, as for this course the process is as important as the final design, the students need to present not only the project, but also substantial intermediate findings. The tutors will assess, during the mid-term review and the final presentation the way students understand and apply different methods offered. Particular attention will be given to the question how the student succeeds in using methods as offered in the studio, and how the student is able to formulate particular design hypothesis based on these exercises. The consistency of the project on a methodological, architectural and technical level is crucial for the final assessment. For the mid-term review as well as for the final presentation, external critics will be invited.</p>	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1TWF010	The Why Factory Design Studio: Design lab I	12
Responsible Instructor	Prof.ir. W.G.M. Maas	
Responsible Instructor	F.M. Madrazo Salazar	
Course Coordinator	J. Arpa Fernandez	
Instructor	F.M. Madrazo Salazar	
Instructor	Prof.ir. W.G.M. Maas	
Co-responsible for assignments	S. Gargaretas	
Contact Hours / Week x/x/x/x	6 hours per week	
Education Period	1 2	
Start Education	1	
Exam Period	none	
Course Language	English	
Course Contents	<p>This course is a MSc1 studio, and is organized as a think tank. Studios at The Why Factory are content-driven design and research studios with a practical and theoretical scope. MSc1 studios are research labs and platforms that aim to analyse, theorize and construct future cities. They conduct a variety of investigations within the given world, and produce future scenarios beyond it: from universal to specific and global to local.</p> <p>MSc1 studios start with a specific brief and a statement on the future of urban life. Based on the brief, future scenarios will be developed leading to visionary, city-related designs.</p> <p>Students develop their specific approach to the brief and define the necessary scientific research. Calculations, simulations or modelling to support the studio work are elaborated in a parallel seminar: the Future Models seminar.</p> <p>The results of the research lead to a design project with consequent logic, convincing argumentation and illustrative and fantastic visuals.</p>	
Study Goals	<p>Upon completion of the Master 1, 2, 3 & 4 studio trajectory, the student:</p> <ul style="list-style-type: none"> - Has developed the necessary skills in architectural design that satisfy programmatic, aesthetic and technical requirements. <p>During the Masters trajectory, the complexity of the architectural design increases, leading to the level required for professional practice.</p> <ul style="list-style-type: none"> - During this period, skills are acquired to increasingly incorporate an understanding of design processes, architectural history and theory, art, technology and human sciences. - Additionally, skills are acquired to incorporate into design an understanding of the relation between buildings, spaces and society's needs, including environmental aspects. - During Master 1, 2, 3 & 4, skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing. - Together with the building technology training, during Master 1, 2, 3 & 4 skills are acquired to incorporate an understanding of the design process with regard to structural design, materialisation of buildings, comfort and climate control. 	
Education Method	Atelier: 150 hours Self study: 270 hours	
Course Relations	<p>MSc1 studios are linked to two other courses of The Why Factory: the Actualities Workshop (AR1TWF020) and the Future Models seminar (AR1TWF030).</p> <p>Students who join the MSc1 design studio AR1TWF010 as core course must join AR1TWF020 and AR1TWF030 as well.</p> <p>Students who join the design studio AR1TWF010 as an optional MSc2 studio are not obliged to join AR1TWF020 and AR1TWF030. However, we advise students to join the Future Models seminar AR1TWF030, as it may be helpful for the content of the design studio.</p>	
Assessment	Presentation	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

MSc 3 Architecture and Public Building

AR3A160	Lecture Series Research Methods	6
Responsible Instructor	Dr.ir. P.J. Teerds	
Responsible Instructor	Dr.ir. K.M. Havik	
Course Coordinator	Dr.ir. P.J. Teerds	
Instructor	Dipl.ing. R.A. Gorny	
Instructor	M.F. Berkers	
Contact Hours / Week x/x/x/x	28 hours per quarter	
Education Period	1 3	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	General Master 2 level of knowledge.	
Course Contents	<p>The lecture series will allow MSc 3 students from all the departments and chairs of our Faculty to reflect on and explore a series of methodological approaches, which should strengthen their architectural positions in the graduation studio, towards the conclusion of their formative process and the consequent obtainment of the corresponding degree.</p> <p>Students involved in this course are expected to operate at a final year Masters level, meaning they are responsible for performing critically within the series of concepts presented in the course; as well as individually fulfilling course requirements such as being acknowledged with the basics of scientific writing, formulating hypotheses and investigating at a level equivalent to their standing within the curricular track.</p> <p>This lecture series will address scientific integrity to make sure that architecture students develop the necessary skills for integer research approaches while being aware of the societal, political, physical and environmental impacts their research and design work has.</p>	
Study Goals	<p>The lecture series aims to:</p> <ul style="list-style-type: none"> - Take advantage of the magnitude and diversity of the series. The line-up of lecturers, paired to the differences among the academic tracks followed by students from several chairs and departments, should substantially enhance each discussion, and promote creative approaches to each of the topics discussed. - Endow the students with clear knowledge of the heuristic nature of their work. The central thesis of the course is that all architectural activity is an exploration within identifiable disciplinary fields of experimentation, based on equally identifiable epistememes. Awareness of that explorative/cognitive capacity of architecture we sustain is a crucial element in the formation of an architect. - Present the students with a selection of relevant and progressive architectural methodologies and analytical strategies that are currently being used and discussed within the A+BE academic community and in other outstanding educational institutions. - Invite students to become engaged in these discussions actively, in order for their graduation processes to constitute real contributions to the professional debate that feeds our Faculty. It is expected that, with the information provided in this course, each graduation process aims to produce additional architectural knowledge in the face of established and ongoing research programs. - Focus on moral sensibility, analysis, creativity, judgment, and skills regarding architectural ethics when developing specific expertise. 	
Education Method	<p>The course comprises two, parallel activities: A series of lectures and the preparation of a position paper. The lecture series is made up of seven sessions. Six have defined topics, the first is introductory. Each lecture session includes a 30+ min. presentation by a lecturer, a 30+ min presentation by a group of students, and a 30+ minute series of Q&A, presented to both lecturer and students. Each guest lecturer is responsible for submitting on the fore a reference text for students to prepare the session, and a paper of her authorship that exposes, summarizes or complements her presentation. Both documents will be made available to the whole group of students with sufficient anticipation.</p> <p>A group of students will be responsible for preparing each lecture. These groups will be formed during the course intro, and will divide themselves into a subgroup in charge of presenting the topic, and other subgroups in charge of preparing a series of debate topics and questions, for the closing discussion.</p> <p>The whole group of students in charge of preparing each session will participate in a workshop, in which they will be guided in the development of their presentation and the construction of different positions within the chosen topic, looking forward to the debate. These workshops will take place on Monday mornings, and will be tutored by the coordinators of the lecture series and/or staff from the chair of Methods and Analysis.</p> <p>Before entering each lecture session, the group of presenting/debating students will hand in a paper of their authorship (2000 words, aprox.) that exposes, summarizes or complements their presentation, the images that accompany their talk, the questions and debate topics developed to feed the debate, and any other addenda they consider necessary to support their understanding of the topic.</p>	
Literature and Study Materials	A reader will be distributed via Blackboard/Brightspace	
Assessment	<p>Each student is responsible to elaborate on her own reflections regarding the course, the debates, the literature that will be provided and suggested, and her own graduation process, by producing an individual position paper (aprox. 2000 2500 words), following scientific standards of writing and structuring her topics (acknowledging a state of the art for a particular discussion, for example) towards the construction of a methodological apparatus in affinity with her own intentions and inclinations.</p> <p>Upon request, specific tutoring/workshops for this second component are available, in the same group format utilized for the preparation of the sessions.</p> <p>In order to attend one of these tutorials, interested students must submit a full draft of their essay, including their name, student number and current chair/graduation studio. The submission deadline for this draft will be specified at the beginning of the period.</p> <p>The course coordination will group the drafts and submit them to available tutors, by topic affinity. These tutors will read the drafts and subsequently organize a workshop with small groups of students. The aim of these workshops are to clarify doubts, elaborate on formal and stylistic concepts, and contribute thematically to the development of the final versions of the papers.</p> <p>The fact that extra tutoring is available does not mean that the students are not encouraged to also seek additional support from their teachers in the other courses that constitute the graduation track.</p> <p>Position papers are expected to be approximately 2000 2500 words in length, and should comply with academic and scientific standards in terms of form and style.</p> <p>The fundamental aim of this assignment is to enable students to formulate a sound and consistent architectural position, in the</p>	

face of the broader discussions presented as a partial state of the art of professional discussion, both within our Faculty and in contemporary architecture culture.

Articulating a position requires knowledge and understanding of a diverse array of postures, which are carefully considered in response to the problems of our time. Getting acquainted with diverse sources, authors and architectural examples; articulating the information contained in these sources; abstracting and operating with the useful and/or relevant ideas they represent; and (hopefully) further elaborating them into progressive architectural models; are all goals of this exercise.

It is assumed that the reflections generated during the course, and the resulting position paper, are active components of the broader exploration that is the graduation project. Research, reflection, discursive elaboration and historical contextualization are fundamental parts of a complete architectural intervention, meant to perform in site- and cultural-specific conditions, but also in the broader intellectual framework that is the architecture of our time.

In this sense, reflections should elaborate on the central concepts, methods and tools employed in the development of the architectural explorations leading to the Masters degree, at a level that transcends the simple description of steps taken in the elaboration of a project.

Cases of plagiarism will be dealt with according to standard procedures established by the corresponding authorities within the University.

Special Information

Each period will include a normal deadline for the presentation of the final position papers. Papers handed in within this deadline will be graded normally.

An extra hand-in moment will be offered for late papers, around the middle of the following academic period. Papers presented for this extra hand-in moment will only be evaluated in terms of pass (6,0/10,0) and fail (5,0/10,0 and under).

Remarks

Position papers will be evaluated on the following items:

- Has a question been clearly defined?
- Has the question been developed beyond its initial formulation?
- Does the paper acknowledge a state of the art, regarding this question?
- Has a position been taken, in relation to this state of the art?
- Is the paper coherent/concise?
- Does the paper follow a clear methodology?
- Are the sources pertinent, and well used?
- Is the language adequate?

Period of Education

Lectures take place during the first quarter of the period.

The second quarter of the period is used for the production of final position papers.

Individualized tutoring is offered upon request, to students who require extra help in the process of writing their papers, during this second quarter.

Course evaluation

The course will be graded on the basis of a final, position paper, worth 100% of the grade assignable to the Lecture Series. This position paper is expected to range between 2000-2500 words, and must be submitted before a specified deadline.

Only papers accepted and graded with a mark above 5,0/10,0 will be eligible for re-takes or further corrections.

Close attention must be paid to the fact that a passing grade in this course is necessary to apply for a Studio P4 presentation. Please note that the deadline for the presentation of these papers is indicated since the very beginning of the semester. This should allow you to plan the development of your essay without interfering with other deadlines. Conflicts with other courses should be negotiated with the Board of Examiners.

AR3AP010	Seminar Research Methods	6
Responsible Instructor	Dr.ir. M.G.H. Schoonderbeek	
Responsible Instructor	Dr.ir. S. Komossa	
Course Coordinator	S. Milani	
Course Coordinator	Ir. A.M.F. van Dam	
Instructor	Ir. F. Geerts	
Instructor	Dr.ir. S. Komossa	
Instructor	Ir. A.M.F. van Dam	
Instructor	Dr.ir. M.G.H. Schoonderbeek	
Instructor	A.S. Alkan	
Instructor	N. Marzot	
Instructor	S. Milani	
Contact Hours / Week x/x/x/x	4 hours per week for 10 weeks	
Education Period	1 2	
Start Education	1	
Exam Period	none	
Course Language	English	
Course Contents	<p>The seminar is part of the research work in the Master 3 studios and consists of investigations into the theme and site, i.e. the city of the studio. Doing so the seminar offers the possibility to approach the studios theme and city in various ways. They range from the reading of scientific literature, historical research, backgrounds in the theory of architecture and other disciplines, literary reading and writing to comparative urban studies and mapping. However, also the compilation of relevant data, scenario drawing and writing including speculation on a possible future can be object of this investigation.</p>	
Study Goals	<p>During the first seven weeks of the semester a parallel lecture series on research methods is organized (AR3A160) to support research work in the studio. The lecture series highlights various aspects of architectural research, focusing on methods and media. Moreover in this studio related seminar (AR3AP010) the theoretical backgrounds of the tools and techniques presented in the Research Methods Tutorial (AR3AP020) will be distinguished, studied and discussed.</p> <p>In addition to the lectures, and as part of the studio work, each student contributes to the research field of the studio within the specificity of their own individual approach, which is articulated within the theme and city of the studio.</p> <p>Employ relevant research method(s) to acquire and filter research data to address the requirements of their design brief.</p> <p>Formulate their research questions and define their design approach respectively.</p> <p>Construct the fundamental theoretical/conceptual framework for their research questions.</p> <p>Develop their arguments how a design brief can be related to the actual needs of society at a given moment in history and by doing so, understanding the societal relevance of architecture.</p> <p>Demonstrate to have gained specific knowledge in the field of theories in architecture, technologies and human sciences, which enable him/her to link theories and design skills within the design studio in an adequate way.</p> <p>Demonstrate/present their research findings by the final essay with clear methodological framework following scientific writing guidelines.</p>	
Education Method	Seminars, lectures and tutoring: 56 hours Self-study: 112 hours	
Assessment	<p>Attendance & participation</p> <p>Submission of paper abstract</p> <p>Submission of draft paper</p> <p>Final paper (Each instructor will specify the paper requirements and the deadline.)</p>	
Special Information	<p>The maximum marking period is 10 work days.</p> <p>For more information, contact: pb-edu-bk@tudelft.nl</p>	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR3AP020	Tutorial Research Methods	3
Responsible Instructor	Dr.ir. M.G.H. Schoonderbeek	
Responsible Instructor	Dr.ir. S. Komossa	
Course Coordinator	S. Milani	
Course Coordinator	Ir. A.M.F. van Dam	
Instructor	Ir. F. Geerts	
Instructor	Dr.ir. S. Komossa	
Instructor	Ir. A.M.F. van Dam	
Instructor	Dr.ir. M.G.H. Schoonderbeek	
Instructor	A.S. Alkan	
Instructor	N. Marzot	
Instructor	S. Milani	
Contact Hours / Week x/x/x/x	3 hours per week	
Education Period	1 2	
Start Education	1	
Exam Period	none	
Course Language	English	
Course Contents	<p>The course bridges between the theory/research seminar and the MSc. 3 design studio focusing on the crucial link between the design acts, various forms of expression and representation techniques.</p> <p>The tutorials specifically focus on the potential of different modes of representation as a domain of design research in architecture. Hence, the tutorial sessions address various topics and issues in the design process from ideation to materialisation, ranging between precedents, principles of composition, visionary or canonical projects.</p> <p>Invited speakers or researchers will reflect on topical issues, addressing different design/research approaches and they provide feedback on the current status of the students work.</p> <p>The assignment sets constraints on the medium, technique directing the students design research through a guiding theme so that they can sharpen their technique and expressive language within the collective framework of the course.</p>	
Study Goals	<ul style="list-style-type: none"> - Become aware of different (design) research methods in order to inform own design process - Acquire necessary skills in writing/drawing indicated in the course requirements - Explore different design/research approaches and techniques - Work with and probe different constraints to define individual design approach 	
Education Method	<p>Tutorials by the (studio) teachers and guest speakers</p> <p>Tutorials/seminars/lectures (including evaluation): 28 hours Self-study: 56 hours</p>	
Assessment	Interim presentations and final report (paper and/or drawing)	
Enrolment / Application	This tutorial course is a required component for the MSc3 graduation studio of the Chair of Architecture and Public Building.	
Special Information	<p>The maximum marking period is 10 work days.</p> <p>For more information, contact: pb-edu-bk@tudelft.nl</p>	
Period of Education	<p>This course meets bi-weekly (i.e. once every two weeks) over the semester period. In total, there are eight classes; each lasts 3 to 3,5 hours. Definitive course scheduled TBA.</p>	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR3AP131	Public Building Graduation Studio	15
Responsible Instructor	Dr.ir. M.G.H. Schoonderbeek	
Responsible Instructor	Dr.ir. S. Komossa	
Course Coordinator	S. Milani	
Course Coordinator	Ir. A.M.F. van Dam	
Instructor	Ir. F. Geerts	
Instructor	Dr.ir. S. Komossa	
Instructor	Ir. M.J. de Haas	
Instructor	Ir. A.M.F. van Dam	
Instructor	Dr.ir. M.G.H. Schoonderbeek	
Instructor	S. Lee	
Instructor	O.R.G. Rommens	
Instructor	A.S. Alkan	
Instructor	N.E.A.I. Deboutte	
Instructor	N. Marzot	
Instructor	S. Milani	
Contact Hours / Week x/x/x/x	112 hours per semester	
Education Period	1 2	
Start Education	1	
Exam Period	none	
Course Language	English	
Course Contents	<p>The memories architecture embodies do not remain singular, static and coherent. They are edited, revised, erased, spliced, and renewed. They are also often destroyed by accident or intentionally and repurposed in order to meet the contemporary needs. In the process, certain privileged memories pass the tests of time and events, remain conscious, and influence subsequent generations. Others fall through the cracks and disappear. In order to fill such cracks, new memories are constructed and continue the process.</p> <p>As the cycles of construction, destruction and reconstruction of buildings and cities, and the memories attached to them accelerate, not only existing segments of culture fall through the cracks but also new ones emerge more frequently and in larger scope. We also face the increasing number of disused, forgotten, abandoned and destroyed buildings in large swaths of industrialized nations and their urban landscapes. We inherit decomposing memories from the recent past.</p> <p>The A-PBs MSc. 3 studio discovers and reassesses the traces of architectural manifestation and urban configuration. We offer distinctive design groups that are set in various cities with distinctive approaches and trajectories. Each studio group focuses on both the given city's invisible facets in order to unveil the dimensions beyond the obvious and the ordinary. Each studio pays special attention to the contemporary position of architecture as a form-giver of memories.</p> <p>The A-PBs design courses focus on architectural and urban sites of other spatial conditions emerge have hardly been explored within the contemporary architectural discourse. The studios investigate into the characteristics of contemporary conditions and the larger, urban scale, with a special emphasis on the city as culture. The studios therefore adopt a broad view towards the notion of architectural design that emphasizes process-oriented investigations. This approach stresses the importance of projecting the design process into tectonic, spatial and semiotic constructs. We see them crucial to the development of an architectural work. The studio focuses on architectural design that uncovers the invisible and unveils the dimensions beyond the ordinary and the obvious.</p> <p>Analogue and digital tools and techniques of conception, documentation, notation and mapping provide a way to read and register urban fields and investigate them through a specific apparatus. Each city-group will focus on the specific characteristics of the urban conditions and interstices in order to understand each city's spatial disposition and approach innovative and experimental architectural work.</p> <p>The cities of the design groups will be announced shortly before the enrollment period starts. Each enrolled student will have an opportunity to choose the group of his/her preference.</p> <p>Each city-group requires an excursion abroad. The excursion may cost around 400 or more per person for transport, lodging and other expenses depending on the location.</p>	
Study Goals	<p>Develop effective tools and techniques for implementing a design position.</p> <p>Analyze, evaluate and pursue a range of technical, programmatic, theoretical, historical and professional implications toward the final design proposal.</p> <p>Integrate and express theoretical knowledge and practical skills into design process.</p> <p>Develop, exercise and improve a high level of independence during design process and production.</p> <p>Reflect on the work and learn from peers in consideration of architecture as discourse.</p> <p>Position the design work in relation to history, culture, conventions and theoretical context.</p> <p>Communicate and defend complex design ideas through verbal, visual and written media to both specialist and non-specialist audiences.</p> <p>The graduation report demonstrates the students ability to employ moral sensibility, analysis, creativity, judgment, decision and argumentation skills regarding Architectural ethics and his/her future role as architect. The individual graduation report should not only contain an elaboration regarding the Graduation Projects societal and disciplinary relevance, but has to also address design ethics and the way in which intercultural issues were addressed in the graduation project.</p>	
Education Method	<p>Pre-design research</p> <p>Site visit and field investigation</p> <p>Formal exercises in drawings and models</p> <p>Materials exercises</p> <p>Presentation and critique</p> <p>The studio work may include and be supplemented by charrettes, informal/intermediate reviews, as well as by supplementary lectures and workshops.</p> <p>Shortly prior to the beginning of the semester, each student will be asked to choose and sign up for one of the city-groups in the order of the first, second and third preferences.</p> <p>After the city-studio selection process, each student will also be given an opportunity to switch places 1:1, if necessary, at the</p>	

	<p>discretion of the coordinators and instructors.</p> <p>During the first half of the semester, until the midterm review (P1), the students will work in groups.</p> <p>Assessment</p> <p>**P1 (Week 1.10)**</p> <p>PDF/PPT presentation Concepts & schemes poster (1 A0 per project) Study models Project synopsis Requirements specified by the the faculty rules & regulations for graduation</p> <p>**P2 (Week 2.9)**</p> <p>PDF/PPT presentation Design poster (3 A0s per project) Study models from the midterm, plus site & building models Requirements specified by the faculty rules & regulations for graduation</p> <p>The P 1 & 2 weeks may be subject to change. Consult the graduation regulations for the submission requirements.</p>
Special Information	<p>The studio work may include and be supplemented by charrettes, informal/intermediate reviews, as well as by supplementary lectures and workshops.</p> <p>Shortly prior to the beginning of the semester, each student will have an opportunity to choose and sign up for one of the city-groups. The student must select and express the first, second and third preferences. When the preferences are missing, the student will be randomly assigned to a city-group.</p> <p>After the city-studio selection process, each student will also be given an opportunity to switch places 1:1, if necessary and at the discretion of the studio instructors.</p> <p>During the first half of the semester, until the midterm review, the students will work in groups.</p> <p>The maximum marking period is 10 work days.</p> <p>For more information, contact: pb-edu-bk@tudelft.nl</p>
Period of Education	Semester
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

MSc 4 Architecture and Public Building

AR4AP100	Public Building Graduation Studio	30
Responsible Instructor	Dr.ir. M.G.H. Schoonderbeek	
Responsible Instructor	Dr.ir. S. Komossa	
Course Coordinator	S. Milani	
Course Coordinator	Ir. A.M.F. van Dam	
Instructor	Ir. F. Geerts	
Instructor	Dr.ir. S. Komossa	
Instructor	Ir. M.J. de Haas	
Instructor	Ir. A.M.F. van Dam	
Instructor	Dr.ir. M.G.H. Schoonderbeek	
Instructor	S. Lee	
Instructor	O.R.G. Rommens	
Instructor	A.S. Alkan	
Instructor	N.E.A.I. Deboutte	
Instructor	N. Marzot	
Instructor	S. Milani	
Contact Hours / Week x/x/x/x	6 hours per week or by appointment	
Education Period	3	
Start Education	3	
Exam Period	none	
Course Language	English	
Course Contents	The MSc. 4 design studio continues and elaborates on the design concepts and schemes developed during the MSc. 3 semester. The work in the MSc. 4 semester focuses on the final resolution of the graduation project that meets the requirements by the exam commission.	
Study Goals	<p>Develop a definitive project on his/her own that qualifies functional, spatial and aesthetic qualities through relevant research and preparation</p> <p>Integrate building technology in adequate ways into the architectural design</p> <p>Integrate knowledge of industries, organizations and methodologies which play a part in the translation of a concept into a building</p> <p>Reflect on and demonstrate the design process and argument in a scientific way</p> <p>Present both the process and the product, based on a clear concept in a public presentation and position them within the current architectural discourse</p> <p>Synthesize requirements of building technology and the architectural design</p> <p>Apply competently the fundamental knowledge of building technology to formal and construction systems, details and climate systems</p> <p>Place the design and building technologies in a broader context of community and culture</p> <p>Present the technical considerations of the design process and the end result in a clear and systematic way to a broad public, in the form of drawings, words, texts and schemes</p> <p>Argue and defend complex design ideas at an advanced level through verbal, visual and written media to specialist and non-specialist audiences</p> <p>The graduation report demonstrates the students ability to employ moral sensibility, analysis, creativity, judgment, decision and argumentation skills regarding Architectural ethics and his/her future role as architect. The individual graduation report should not only contain an elaboration regarding the Graduation Projects societal and disciplinary relevance, but has to also address design ethics and the way in which intercultural issues were addressed in the graduation project.</p>	
Education Method	Individual Consultation Independent design & self-study	
Assessment	Presentations & evaluations: P3, P4 and P5 Refer to the graduation calendar for specific weeks.	
Special Information	The maximum marking period is 10 work days. For more information, contact: pb-edu-bk@tudelft.nl	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

CP

Year	2018/2019
Organization	Architecture
Education	Master Architecture, Urbanism & Building Sciences

MSc 1 CP

AR1A060	Delft Lectures on Architectural Design	3
Responsible Instructor	Dr.ir. S. Komossa	
Course Coordinator	Dr.ir. E.H. Gramsbergen	
Instructor	Dr.ir. E.H. Gramsbergen	
Instructor	Dr.ir. P.J. Teerds	
Instructor	Ir. L.G.K. Spoormans	
Instructor	Dr.ir. B.M. Jurgenhake	
Instructor	Ir. M.J. Smit	
Contact Hours / Week x/x/x/x	2 hours per week	
Education Period	1 3	
Start Education	1 3	
Exam Period	1 2 3 4	
Course Language	English	
Course Contents	<p>The Delft Lectures on Architecture Design highlights current issues of the architecture discipline against the background of the larger societal conditions that have an inevitable impact on the practice of design. Contemporary positions in architecture practice and theory will be discussed. Full professors, associate professors and researchers of the Delft Faculty of Architecture will address key contemporary topics, and investigate historical models and theoretical arguments while discussing the latest architecture projects as well as seminal cases.</p>	
Study Goals	<p>Key questions concern: - where do architects stand and what can they do? - which positions and practices are developed by architects? - what strategies and approaches were and are relevant?</p> <p>After completion of the course: Building on the architectural design courses of the Bachelor, the student has gained knowledge of relevant issues of the discipline of architectural design, practice and its body of knowledge, including the main theoretical concepts and models. The student is able to reflect critically on ethical positions taken by lecturers and expressed by their practises.</p>	
Education Method	<p>The student: - Has appropriate knowledge of the main issues of the discipline of architectural design, practice and its body of knowledge, including the main theoretical concepts and models. - Is aware of the larger historical development of the discipline of architectural design in relation to the main theoretical concepts and models deployed of architecture, art and technology, their application in specific cases as presented in the lecture series addressing current issues of architectural practice and society. - Is able to interpret the architectural design production, both historically and current, in terms of the concepts and models of design as discussed in the lecture series; this includes the larger context of the manifold relations between architecture, the city and society and the relations between design concepts, building production and materialization.</p>	
Assessment	<p>Double lectures (2 x 45 minutes) by full professors, associate professors and researchers of the department of Architecture and other faculty members. Lectures are concentrated in the first half of the semester, during 7 weeks. Generally, the double lectures start with introducing the 'issue', after which the 'architectural positions' are discussed. The lecture coordinators are present to introduce the speakers and the topic, and to moderate questions from the students.</p>	
Special Information	<p>The format of the examination is a digital exam with a duration of three hours, which means the examination is taken place in a specifically equipped examination hall on the campus. The maximum marking period is 10 work days.</p>	
Period of Education	Quarter	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1A065	Delft Lectures on Architectural History	3
Responsible Instructor	Prof.dr.ing. C.M. Hein	
Responsible Instructor	Dr. H.D. van Bergeijk	
Course Coordinator	Dr. H.D. van Bergeijk	
Contact Hours / Week x/x/x/x	X/X/X/X	
Education Period	2	
	4	
Start Education	2	
	4	
Exam Period	2	
	3	
	4	
	5	
Course Language	English	
Course Contents	<p>This course provides a deepening of a particular part of the knowledge that the student has gained in the earlier stages of his curriculum. It consists of a lecture series of Capita Selecta dealing with the modern architectural production from 1850 till about 1940. This year the course will focus especially on the birth of modernism in the periode from the beginning of World War I till the collapse of the stock market in 1929. De Stijl-artists and the Bauhaus will be the core of the course but also figures like Dudok, Stam and others will receive due attention. We will try to explore how the abolition of history led to a new concept of society and the underlying concepts of civitas. A belief in the machine produced also a new ethics that will have an influence on the development of society in the 20th and 21st century.</p>	
Study Goals	<p>The student</p> <ul style="list-style-type: none"> - has acquired a sufficient framework to place and value different contributions to the history of the discipline and society in general. - has gained insights on a specific theme and has deepened his knowledge - has an understanding of some of the tools of the architect from a historical point of view. - knows how to apply certain terms and is critical to their meaning - can relate to the work of architectural historians - is capable of giving a motivated and well-argued answer to the questions - has an idea of the importance of the ethical position of the architect and critic in relation to certain important issues 	
Education Method	Lectures	
	Readings	
Literature and Study Materials	All students should read:	
	- Michael White, De Stijl and Dutch Modernism (Manchester University Press).	
	Further readings will, if necessary, be provided through Blackboard.	
Assessment	Exam with essay questions in which the students exposes his knowledge. The student can choose from the questions. The answer to an essay question should be given in about 500 words. The knowledge that the students shows should be related to his readings and the ideas that he has formed during the course. Students are expected to challenge themselves.	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1A075	Delft Seminars on Building Technology	6
Responsible Instructor	Prof.ir. M.F. Asselbergs	
Responsible Instructor	Ir. B. Gremmen	
Course Coordinator	Ir. B. Gremmen	
Contact Hours / Week x/x/x/x	40 hours per quarter	
Education Period	1 3	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	We expect that you followed the bachelor in Delft or a similar education elsewhere in the world. You have gained knowledge and practices in the next topics:	
	<ol style="list-style-type: none"> 1. constructional and structural detailing (1:20/5/2/1) 2. Structures/constructions in steel, wood and concrete 3. Climate issues, ventilation, heating and cooling 	
	Literature list for International students, master Architecture We take the content of these books as read before participating.	
	<p>Components and connections Author: Meijs, Maarten Contributor: Knaack, Ulrich Publisher: Birkhäuser Publish date: 2009 Document type: book ISBN: 978-3-7643-8669-6 Subtitle: principles of construction Classification: UJA / Building structures: general Chapters all</p>	
	<p>Building construction illustrated Author Ching, Francis D.K Publisher Wiley Publish date 2008 Document type book ISBN 978-0-470-08781-7 Edition 4th ed. Chapters all</p>	
	<p>Structures Author Schodek, Daniel L. Publisher Pearson/Prentice Hall Publish date 2008 Document type book ISBN 0-13-178939-2 Edition 6th ed. Chapters 1,2,3,4,6,7,9,10,13,14,15,16,</p>	
	<p>Climate and Architecture Author Dahl, Torben Publisher Routledge Publish date 2010 Document type book ISBN 978-0-415-56308-6 Edition 1th ed. Chapters all</p>	
	<p>Building Physics Author Linden, A.C. van der Publisher Thiemeleuhenhoff Publish date 2013 Document type book ISBN 978-9006-95155-4 Edition 1th ed Chapters all</p>	
Course Contents	In this course you will make a new technical design for a selected fragment of a case study building or a fragment. In two posters (A0) you will present your new design in technical drawings 1:20 and 1:5/1. Next you will explain the structural design, climate design and facade design in informative diagrams, illustrated with photographs and sketches.	
Study Goals	The student:	
	<ol style="list-style-type: none"> 1. Is able to use research skills in technological design issues and is able to formulate an accurate guiding theme or position, that guides the design process 2. Is able to recognize technical design problems and is able to select -in a substantiate manner- the best solution from a series of (self) formulated possible design alternatives 3. Is able to interpret and integrate the aspects of structure design, construction (facade) design and climate design in a design of a building 4. Is able to provide innovative design solutions especially with regard to the use of energy and providing comfort in building design 5. Is capable of drawing and presenting architectural and technical aspects of a design in a coherent and clear manner 	
Education Method	work groups (seminars)	
Books	<ul style="list-style-type: none"> - Millais, M., 'Building structures, a conceptual approach', London, 1999 - Jones, B., Peter, 'Modern Architecture Through Case Studies', Oxford, 2002 - Daniels, 'Advanced Building Systems, a technical guide for architects and engineers', Basel, 2003 - Frampton, 'Studies in Tectonic Cultures', The MIT Press, 1995 - Ronner, Kolliker, Rysler, 'Baustuktur', Basel, 1995 - Schittich, C., 'In detail: building skins: concepts, layers, materials Basel', Basel, 2001 - Watts, A., 'Modern Construction Handbook', Wien, 2001 - Watts, A., 'Modern Construction Facades', Wien, 2005 	

<p>Assessment</p>	<p>- Bachman, L.R., 'Integrated Buildings', Hoboken Wiley, 2003 - Cook, P., Primer, 'Emancipation of Structure', London, 1996 - Deplazes, D., 'Architektur Konstruieren', Basel, 2005 - Addis, B., 'Building, 3000 years of Design Engineering and Construction', London, 2007</p> <p>The examination will take place in the form of a poster (pin-up) presentation in the studio spaces. Examination will only take place during the final presentations of the course. The date of the final presentation will be announced in the seminar handout. You will receive a mark between 1 and 10 with the following meaning:</p> <p>10 Excellent 9 Very good 8 Good 7 Quite sufficient work 6 Sufficient</p> <p>5,5 Almost sufficient, can be corrected with a repair task without tutoring. Only minor deficiencies can be fixed as a repair task, decided by the tutor. Must be finished within two weeks after the final presentation. Second repair is not possible. Your work will be marked with an V.If the repair does not higher the grade up to V you will have to redo the course.</p> <p>in the case of a delayed evaluation (by request of the study counsellar), the figure will be a maximum of 6.</p> <p>5 and lower, Unsufficient, you have to redo the course next semester</p> <p>NV in case you did not finish the course</p>
<p>Special Information</p> <p>Period of Education</p> <p>Concept Schedule</p>	<p>The maximum marking period is 10 work days.</p> <p>Quarter</p> <p>Q1: In the weeks 1.1 up to and including week 1.6 of the 1st quarter you need to reserve in time Q3: In the weeks 3.1 up to and including week 3.5 of the 3rd quarter you need to reserve in time</p> <p>Tutoring: 40 hours Independent study: 128 hours</p> <p>Seminars will take place on Tuesdays and Fridays, mornings or afternoon. Final presentation will take place on the Friday of the week 1.6 (Q1) and 3.5 (Q3)</p>
<p>Leerstoel</p> <p>Course evaluation</p>	<p>Architectural Engineering</p> <p>For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/</p>

AR1CP010	Complex Projects Design Studio	12
Responsible Instructor	Prof.ir. C.H.C.F. Kaan	
Course Coordinator	M. Triggianese	
Instructor	Ir. A.T. Richters	
Instructor	S. Filippas	
Contact Hours / Week x/x/x/x	80 hours per semester	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	BSc degree Architecture	
Course Contents	<p>As introduction to Complex Projects, this design studio, 'Landmark', has the ambition to make students familiar with the multiple aspects that define a building. Landmark assignment aims for developing skills in the scientific method of analysis and synthesis. Via anatomical dissection, students learn to identify soft and hard aspects of a building while placing them in the bigger frame of the total composition of the building and its context.</p> <p>The studio promotes broad speculation, independent thinking, collective work with the aim of positioning architecture into a broader social, cultural, political, and economic context. Students will perform a thorough urban research in order to understand the areas history and context, and to identify the Landmarks that could become catalyst for intervention. The research zooms in from the large scale of the city itself, to the medium scale the site, to the small scale of the building. The resulting data has to be organized into a comprehensive research book. This serves as basis for forming a narrative which is leading for the individual redesigns of the Landmark.</p> <p>The seminar AR1CP040 (Anatomy) is fully integrated with the studio. An educational trip / excursion with on-site workshops is part of the studio program. Please contact the studio coordinator to know this year's case studies.</p>	
Study Goals	<p>Upon completion of the MSc1, 2, 3 & 4 studio trajectory the student:</p> <ul style="list-style-type: none"> Has developed the skills in architectural design satisfying both aesthetic and technical/functional requirements. During the trajectory the complexity of the architectural design increases leading to a level fit for architectural practice. During this trajectory, skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology and human sciences. Additionally, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and society's needs, including environmental aspects. During MSc1, 2, 3 & 4 process skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing. Together with the training with regard to aspects of building technology, during the MSc1, 2, 3 & 4 process skills are acquired to incorporate an understanding of the design process with regard to structural design, materialization of buildings, comfort and climate control. 	
Education Method	Tutorials in studio. Research will be done in thematic groups, design is either individual or in groups of max 2 students.	
Reader	Reader (syllabus) with the studio programme, the basic literature and the weekly schedule will be provided prior to start studio	
Assessment	<p>Monthly pin ups showing research, argument and concept.</p> <p>Trial presentation two weeks prior to the final presentation. The overall work has to be finished by then. Final presentation composed of research books (with critical investigations and site-analysis) and design studio book (with design projects) and digital presentation.</p>	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Semester	
Leerstoel	Complex Projects, department of Architecture	
Minimum aantal deelnemers	16	
Maximum aantal deelnemers	32	
Course evaluation	<p>Evaluations will be based on the overall performance within the studio. The students performance will be determined by the quality of his/her work, commitment, teamwork, effort and improvement over the entire course of the semester. Concrete aspects for evaluation are; research work, argument formulation, translation argument into concept, urban plan, architectural design, presentation.</p> <p>For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/</p>	

AR1CP040	Anatomy of a Landmark Seminar	6
Responsible Instructor	Prof.ir. C.H.C.F. Kaan	
Course Coordinator	M. Triggianese	
Instructor	Prof.ir. C.H.C.F. Kaan	
Contact Hours / Week x/x/x/x	X/X/X/X	
Education Period	1 3	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Course Contents	<p>'Anatomy of Landmark' seminar</p> <p>In history, the scientific revolution marks a break with the old assumptions used to explain the world around us. This break was radical and resulted in the transition from spiritual interpretation to reason, observation and analysis. During this transition, drawings became objective illustrations instead of subjective representations. Key figures of the scientific revolution were Copernicus, Vesalius and Palladio who all used anatomy as a tool to do research in their specific field. Copernicus drew the first realistic solar system showing the earth revolved around the sun, Vesalius drew the human body in its raw functional beauty and Palladio re-drew Roman buildings to understand the classical architecture for re-using its elements in new designs.</p> <p>Anatomy is divided in topographical (gross) anatomy, studying the structure, position and organization of organisms or things. Physiological anatomy is needed to determine the functionality of the elements.</p> <p>Essential is to understand that the anatomical drawing alone has a only a certain value, but it is especially the act of drawing that gives insight. It is the direct relationship the researcher has with the object of study through drawing. The cumulative process of seeing, drawing and understanding leads to a stimulation of what you might call serendipity; coincidental discoveries.</p> <p>In the Anatomy seminar, lectures series and individual theoretical investigations, the research will be done in thematic groups.</p>	
Study Goals	<p>The student:</p> <ul style="list-style-type: none"> Has further knowledge in the field of theories in architecture, technology and human sciences, which enable him/her to link theory and design skills within the design studio in an adequate way. Has an understanding of the way in which architectural positions are taken in the current architectural discourse and how these positions are related to the arts. Has an understanding of methods to investigate a design brief in regard to program analyses and ordering, material & structural qualities, typological & tectonic aspects, including the analysis of a building site and the general context of the architectural project. 	
Education Method	<p>During the seminar running parallel with the Landmark studio, we'll do a typological study of a building type that is dealt with in the studio. By studying the evolution and by visualizing key examples we generate knowledge of the structural, spatial, functional and aesthetical changes. The seminar contains lectures, discussions and readings of various books that cover different aspects of the type. Final product is a collection of drawn explorations enhancing the research work done in the Landmark studio. The work is done in groups.</p>	
Assessment	<p>Drawn study Written reports Debates Presentations</p>	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

Starting Course MSc1

ARX071	Workshops Faculty of Architecture and the Built Environment	1
Responsible Instructor	Dr.ir. R. Cavallo	
Contact Hours / Week x/x/x/x	X / 0 / 0 / 0	
Education Period	1	
Start Education	1	
Exam Period	none	
Course Language	English	
Course Contents	<p>All new MSc students of the Faculty of Architecture and the Built Environment will start the academic year 2018-2019 with a 3-day workshop programme on 30 & 31 August and 3 September 2018.</p> <p>The programme is developed in cooperation with TPM colleagues of the section "Ethics & Philosophy of Technology". With a mix of lectures, workshops and sessions guided by teachers of the faculty, you will be introduced to (design) ethics, scientific integrity and intercultural communication.</p> <p>With these workshops you will make a first start to cover the ethics engineering learning goals of the MSc programmes. Further, we wish to enhance the interaction between all new students, both Dutch and International, and to introduce you to settings, methods and procedures of the faculty.</p> <p>Participation in the workshops is mandatory for all students starting their MSc 1 programme in September.</p>	
Study Goals	- The student has a basic understanding of moral sensibility, moral analysis skills, moral creativity, moral judgement skills, moral decision-making skills and moral argumentation skills.	
Education Method	Lectures, workshops, role playing game, assignment	
Assessment	Workshops attendance Assessment: V (passed) or NV (failed)	
Special Information	<p>The academic year will start with a three day workshop programme. With a mix of lectures, workshops and sessions guided by teachers of the faculty, you will be introduced to (design) ethics, scientific integrity and intercultural communication. With these workshops you will make a first start to cover the ethics engineering learning goals of the MSc programmes. Further, we wish to enhance the interaction between all new students, both Dutch and International, and to introduce you to settings, methods and procedures of the faculty. The workshops will lay the foundation for your master studies. It is highly recommended for both Dutch and International students to participate in this programme and you will be granted 1 EC after following the whole programme. This EC will be used in your electives list Master 2/3.</p> <p>For more information see website: https://www.tudelft.nl/studenten/faculteiten/bk-studentenportal/onderwijs/master-of-science/workshops-master-students/</p>	
Period of Education	3 days	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

MSc 2

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

Compulsory

AR2A015	Delft Lectures on Architectural Sustainability	3
Responsible Instructor	Ir. P.G. Teeuw	
Responsible Instructor	Prof.dr.ir. A.A.J.F. van den Dobbelsteen	
Course Coordinator	Ir. P.G. Teeuw	
Contact Hours / Week x/x/x/x	14 hours per quarter	
Education Period	1 3	
Start Education	1 3	
Exam Period	1 3 4	
Course Language	English	
Required for	Compulsory MSc2 course for the variant (track) Architecture of the master Architecture, Urbanism and Building Sciences.	
Course Contents	This lecture series emphasizes the possibilities of architecture itself as a means to promote sustainable development. Architecture as a tool to create a more sustainable world. Rather than focus on added sustainable technologies, this course searches for architects possibilities to design good sustainable architecture and a smart organisation. A 'sustainability' driven design attitude should become a second nature for students.	
Study Goals	The student: - Has an overall understanding of the factors associated with: sustainable development related to architectural design. - Has an understanding of the architects responsibilities towards sustainable design. - Is able to position him or herself in matters concerning the relation between sustainable development in general and architecture in particular. - Is capable to formulate possible architectural solutions for building-related environmental issues and has an understanding of their social, ethical and economic dimensions.	
Education Method	Lectures and debate	
Literature and Study Materials	<ul style="list-style-type: none"> - Reader Delft Lectures on Architectural Sustainability; edition course year 2018-2019, September 2018 (Brightspace) - Jón Kristinsson, Integrated Sustainable Design, Delft/Deventer 2012 - Required reading for the exam: Chapters 2, 3, 4, 5, 8, 9, 10 (Bouwshop) - Anke van Hal, The merger of interests, Breukelen 2009 - Required reading for the exam: up to and including page 17 (Download from the internet) - Anke van Hal, The merger of interests 2.0, Breukelen 2014 - Required reading for the exam: Chapter II and III (Download from the internet) - Some parts of the website http://www.urbangreenbluegrids.com as links included in the reader; edition course year 20182019, September 2018 (Brightspace) - Some articles of the book Circulariteit op weg naar 2050? red. Peter Luscuere 2018 (download from the internet)' pages indicated in the reader; edition course year 20182019, September 2018 (Brightspace) 	
Assessment	Written exam	
Special Information	The maximum marking period is 15 work days.	
Period of Education	Quarter	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

Compulsory Choice

AR2A010	Architectural History Thesis	6
Responsible Instructor	Prof.dr.ing. C.M. Hein	
Course Coordinator	Prof.dr.ing. C.M. Hein	
Instructor	Drs. C.A. van Wijk	
Instructor	Dr.mr. E. Korthals Altes	
Instructor	Dr. H.D. van Bergeijk	
Instructor	Dr. M.T.A. van Thoor	
Instructor	Dr. R.J. Rutte	
Contact Hours / Week	10 hours per quarter	
x/x/x/x		
Education Period	1	
	2	
	3	
	4	
Start Education	1	
	3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	Research writing:	
	The student:	
	- Demonstrates a general historical understanding of the architecture profession and the role of the architect in society.	
	- Can apply broad knowledge of the history and theory of architecture and related art forms and the humanities, as well as of the social and cultural developments relevant to architectural design.	
	- Has developed appropriate academic writing skills. For TU Delft BSc graduates, a finished AC3 paper should have provided them with skills in planning and developing a research project, critical and responsible use of sources, and logical argumentation. These skills will be applied and expanded during this course.	
	Language skills:	
	- The student has appropriate English language skills.	
	If in doubt, the student should consult the OpenSourceware made available through the following links:	
	https://learn.saylor.org/course/view.php?id=42	
	https://learn.saylor.org/course/view.php?id=43	
	These links lead to the English courses offered for free to all by the online Saylor Academy.	
	Please Note: Any issues regarding research skills or language capacities will have to be addressed before the start of this course, and will require serious commitment by the student. The language courses are extensive and the student will not be able to combine them with the normal thesis workload during the semester.	
Course Contents	The history thesis (geschiedeniscriptie) is a required independent research project in the Master 2. It may deal with architecture, urbanism, the visual arts, design and photography, film or literature. It provides students the opportunity to hone their research skills on a historical topic. If the focus is on architecture, the research can also be of a typological kind, for example on a particular type of building, preferably not through the centuries but concentrating on a particular period or aspect. If urbanism is the subject matter, the themes may vary from the regional to the neighborhood scale, design and decision making processes, the role of politics, theories (ranging from functionalism to morphological approaches, from programmatic aspects to ideas about the creative classes and gentrification). It may also be a topographical / territorial topic, where appropriate in combination with other aspects. Finally it can regard also the investigation of an abstract topic: rhythm, scale, theory of proportions, ornamentation, eclecticism and monumentality, etc. in which an historical point of view is dominant.	
	Using mixed methods from archival research and oral history to close reading of visual and textual analysis students critically examine a topic of their own choosing, producing a substantial research paper based on a clear historical perspective. This analytical and conceptual experience forms an important complement to the design‐based education of the master in architecture. Writing a history thesis offers students a unique opportunity to pursue a research on a specific topic and requires students to work independently. Building on historical knowledge and research skills gained in introductory and advanced courses, students focus on primary materials and pursue an original question. They develop a complex argument and grapple with multiple data sets and interpretations. Collective and individual meetings with tutors provide a framework for the production of an original, well‐written essay of about 9000 words. Students need to be familiar with library catalogues and search engines. The essays are required to demonstrate superior and consistent understanding of scientific writing (i.e. footnotes, bibliography, front and back matter). topics have to be approved by the supervisor who has to be a member of the Chair History of Architecture and Urban Planning. The topic has to be discussed with the supervisor prior to commencing. Sometimes teachers will offer a workshop.(See Blackboard).	
Study Goals	Learning objectives	
	After completion of the course the student:	
	- Exhibits in depth knowledge regarding a specific field of study within architecture, urbanism, art, and or media.	
	- Is able to plan and develop a scientific research project.	
	- Is able to develop a critical and logical argumentation from a scientific research question based on primary sources.	
	- Is able to evaluate, interpret and make proper reference to available sources.	
	- Is able to build on existing knowledge and develop new knowledge.	
Education Method	Thesis supervision: 8 hours	
	Independent study: 158 hours (a day in the week has been reserved for working on the thesis)	
Literature and Study Materials	Blackboard	
Assessment	Thesis (For more information - length, references, use of literature and other sources - see blackboard).	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Quarter 1 and quarter 3	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR2AT030	Architecture Theory Thesis	6
Responsible Instructor	Dr.ir. H. Sohn	
Course Coordinator	Dr.ir. H. Sohn	
Instructor	Dr. S.A. Read	
Instructor	Dr.ir. A. Radman	
Instructor	Dr.ir. H. Sohn	
Instructor	Dr.ir. S. Kousoulas	
Contact Hours / Week	14 hours per quarter	
x/x/x/x		
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Required for	As per MSc2 Architecture program requirements.	
Expected prior knowledge	Students are expected to have developed a specific interest in Architecture Theory, which includes previous reading and some research in this field. Previous writing on theoretically driven topics is highly recommended.	
Summary	<p>The Architecture Theory Thesis course offers students the possibility to explore and engage the rich conceptual and theoretical dimensions of architecture through the development of theoretical arguments and intensive research on a topic of their own choice. A free thematic allows students to conduct individual, independent research on issues and concerns that matter to them, thus offering them the opportunity of deepening their knowledge and expertise on topics which are close to their interests and passions. The focus in all cases, however, will be placed on developing the theoretical aspects of these topics.</p>	
Course Contents	<p>The Architecture Theory Thesis course is designed to guide participating students through the different stages of academic research and writing, aiding them in the identification of the theoretical dimensions and frameworks of their selected research topic and 'problématique', offering them relevant and timely feedback and support on their progress throughout the term. The tutors involved in this course assist students in the formulation of sound problem statements, research questions and argumentation lines towards the production of qualitative theoretical Masters' Theses.</p>	
Course Contents	<p>Although students are required to bring their own research passions and topics of interest to the course, we encourage students to orient these topics within two general domains or areas of specialization:</p> <ol style="list-style-type: none"> 1. Architecture and political economy: Dealing primarily with research on the systemic and scalar complexities of (power) relations, forces, flows and networks, focusing primarily on their impact on -and relationship to- the (built) environment. Further angles include research on geo-politics, bio-politics and contemporary political-economy through critical and speculative investigations on the spatial, social and material transformations and consequences that these unleash across multiple scales, levels and domains. Possible themes, topics and approaches are: critical/speculative approaches to contemporary urbanisation; territorial & material flows: refuge & migration; metabolic/planetary urbanism; socio-material and spatial practices: resistance, subversion, transgression, social movements; etc. Key thinkers: David Harvey, Neil Smith, Peter Marcuse, Neil Brenner, Henri Lefebvre, Erik Swyngedouw, Andy Merrifield, Matthew Gandy, Manuel Castells, Saskia Sassen, Michel Foucault, Slavoj Zizek, Loïc Wacquant, among many others. 2. Architecture and libidinal economy: Research topics dealing primarily with issues related to matter and image, and the means and techniques of production in architecture. Mainly focused on pluralist approaches and speculative theory methodologies, and philosophical inquiries. Themes include the social effects and human affects of technological developments on the mode and means of conceiving, developing and producing cultural objects, artifacts and/or architecture. In other words, research on the material and immaterial processes and productions of things and images and their relation to experience, perception and cognition. Key words or concepts: technology, media, materialism/new-materialism, radical empiricism, speculative realism, ecological thinking, affordance, biopower/noopower, affect theory, complexity theory, geometry, space, time, memory, perception & experience of space. Key thinkers: Gilles Deleuze, Felix Guattari, James J. Gibson, Brian Massumi, Manuel DeLanda, Katherine Hayles, Henri Bergson, Martin Heidegger, Bruno Latour, Katherine Malabou, Jane Bennett, Karad Barad, Rosi Braidotti, Stanford Kwinter, among many others. 	
Study Goals	<p>Upon completion of this theory course the participants will:</p> <ul style="list-style-type: none"> have a solid base of knowledge on recent literature in the humanities and the social sciences and their relation to architecture practice and theorization. the appropriate knowledge of the theory of architecture and related art forms as well as of the social and cultural streams of relevance for architectural design. have developed in-depth knowledge regarding the specific field of study relating to architecture, urbanism, art, and/or media. have acquired knowledge and practice on academic research and writing skills, and will be able to apply these in theoretical argumentation and the formation of discourse. have developed a consistent and cohesive research methodology by distinguishing between a problem statement, an argumentation paper and fully developed research paper will have acquired understanding of the societal, cultural, technological and ethical dimensions and implications of conducting research on architecture 	
Education Method	<p>The Architecture Theory Thesis course is based primarily on independent self-study. It nevertheless offers students sufficient and qualitative contact-time at the early stages through the Introduction Lecture and two group meetings in which students are encouraged to introduce and discuss their topics and theoretical frameworks with their peers and tutors. The exchange of peer-reviews and feedback at this stage offers students a solid point of departure. After the group meetings in the beginning of each term, students develop their work independently. The progress is checked and discussed at regular intervals, guidance is offered through written feedback from the tutors, followed by individual consultation moments, when students can discuss their work with tutors in person. Since this course is based on a self-study format, feedback and guidance are offered on the progress made by the students, who take full ownership of their work. Tutors assist, encourage and advise students in their research and writing, and accompany them throughout the development of their Theses within one semester.</p> <p>Preparatory Phase: Self-study</p>	

Formulation of Abstract

Introductory Phase:

Contact-time

Introduction Lecture: course introduction

Group meetings (2): tutor-led seminar-type discussions and peer-reviews

Problem Statement & Research Questions

Preliminary Reading List

Research-Writing Phase:

Self-study periods

First & Second Drafts

Feedback & Consultations

Final Thesis

For more information please contact the course coordinator.

Course Relations

This course is a required choice-course for MSc1/2 curriculum that awards 6 ECTS upon successful completion.

Accreditation is required for P2 registration, hence we urge students to complete this course prior to MSc3 enrolment!

This course is highly compatible with the Architecture Theory Design Studio Agential Materialisms (AR2AT020) offered only in Spring terms Q4. Students wishing to follow both courses in one term are asked to enrol in the assigned period Q1/3 and Q4.

For questions please contact the course coordinator.

Literature and Study Materials

Part of the objectives of this course is for students to learn how to build a detailed and relevant reading list and research bibliography based on their individual thesis topic. Hence, students will largely define their consulted first and secondary sources.

Tutors will recommend relevant readings and sources during the feedback phases of the course, and upon request by students.

Prerequisites

As per MSc2 Architecture program requirements.

Assessment

This course will be assessed via a series of deliverable assignments:

Problem Statement

First and Second Progress Drafts

Final Thesis

For evaluation criteria and rubrics please consult the course information on Brightspace or contact the course coordinator.

Enrolment / Application

This course has limited enrolment and special requirements!

All interested students are requested to submit a tentative thematic research proposal (motivational abstract) to the Architecture Theory chair in order to determine the theoretical viability of the proposal in advance.

Research proposals should be uploaded on Brightspace and sent via email to the AT chair office, by the announced deadline. Students will receive an email after registration to the course. The abstract deadline will always be prior to the beginning of the course.

A concept form for the tentative thematic research proposal and further information are available upon request.

Send us an email to: AT-MS-C-BK@tudelft.nl

Note: The submission of a proposal does not guarantee acceptance into this course. Proposals that are not theoretical or that lean on clearly historical methods, will not be selected, and the students will be informed prior to the beginning of the course.

Note: Due to the seminar structure of this course students must be able to attend the introductory information lecture, and the group meetings held in the first quarter of the semester.

Students with course scheduling conflicts should not sign up for this course.

This course is not open for students following a study abroad semester.

Special Information

The maximum marking period is 10 working days from the final deadline. Marks will be registered in advance of the following academic term.

This course is equivalent to the History Scriptie. It is mandatory and awards 6 ECTS upon completion.

This course has limited enrolment, and is open to students who submit a tentative thematic research proposal with clear theoretical scope.

This course requires attendance to lectures, group meetings and consultations. Thus, students with schedule conflicts or study abroad plans are not eligible for this course.

Period of Education

Full semesters (Q1-2 & Q3-4)

Minimum aantal deelnemers 30

Maximum aantal deelnemers 75

Year
Organization
Education

2018/2019
Architecture
Master Architecture, Urbanism & Building Sciences

21 ECTS Electives

Introduction 1

The Master 2 program of Architecture consists of a total of 30 credits, of which 21 credits compulsory and 9 credits free elective.

Compulsory (total of 21 credits):

- History Thesis (AR2A010) or the Theory Thesis (AR2DSD820) of 6 credits
- The Delft Lectures on Architectural Sustainability of 3 credits
- An approved Master 2 Architecture design project (12 credits) (see list in studyguide)

Elective (total of 9 credits):

- free electives as to be found in the studyguide

There are 3 possibilities for doing the Architecture Master 2 design project:

- 1 - the Master 2 Architecture design project can be an Architecture Master 1 design project (that you have not followed yet), that you attend as an Master 2 design project (12 credits)
- 2 - a design project (12 credits) from the 'MSc 2 design project list', either a semester project or a quarter project (quarter 2 or quarter 4)
- 3 - it is also possible to participate in an (international) program of another university. For this please contact 'International Office' and Students Affairs (O&S)

The courses in this section are agreed on by the faculty Director of Education and the Master coordinator of Architecture as Architecture design projects suitable for Master 2.

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

MSc 2 Design Projects

AR0026	MEGA	12
Responsible Instructor	Dr. M. Turrin	
Responsible Instructor	Prof.ir. R. Nijssse	
Course Coordinator	Dr. M. Turrin	
Contact Hours / Week	93 hours per quarter	
x/x/x/x		
Education Period	4	
Start Education	4	
Exam Period	none	
Course Language	English	
Expected prior knowledge	Each student is expected to have knowledge about the disciplines to perform in the course. The level of the knowledge should be at least BSc.	
Summary	<p>MEGA is a collaborative integral multi-disciplinary design of a special big and/or tall building. This could be a multifunctional skyscraper or a multifunctional building with a large span, such as a stadium, a sports facility, a museum, an airport, train station or transport hub.</p> <p>The course targets master students in Architecture, Real Estate & Housing, Building Technology and Civil Engineering; and it is open to non-TU Delft students, conforming with TU Delft regulations. It can be chosen by Building Technology students in MSc2 (choice between EXTREME AR2AE010 and MEGA AR0026).</p> <p>Students work in teams. The design team of 4 to 7 students is responsible for delivering an integrated design as a multidisciplinary team; while each student is responsible for one discipline.</p> <p>Disciplines involved are: architecture, structural design, climate design, façade design, design/construction management and computational design/BIM. Sustainability runs transversally across these disciplines.</p> <p>The design process occurs in a collaborative digital design environment, supporting the workflow across the different disciplines. The collaborative digital design requires an integrated 3D approach with BIM (Building Information Modelling), performance analysis, and file to production processes.</p> <p>The workshop is very realistic and closely matches the design process of large international projects in the competition phase; it is a very good preparation and experience builder for your future career. It is highly appreciated by future employers.</p> <p>The course is supported by external international design/engineering offices. With them, the location of the project will be chosen and the brief of the design assignment will be developed. As examples from recent years, support was given by Arup and UNStudio, by ABT and Neutelings Riedijk Architecten. Examples of past collaborations include also Municipalities and Provinces, such as the City of Rotterdam, Almere and Den Haag, and the Province of Friesland.</p>	
Course Contents	<p>Disciplines:</p> <p>The team is organized on disciplines:</p> <ul style="list-style-type: none"> -Architectural Design -Structural Design -Climate Design and building services -Façade Design -Project and construction management -Computational Design <p>The disciplines are divided amongst the team members; each member is responsible for the contribution and integration of these aspects in the collective design. Students are encouraged to match their role in the team with the specialization they follow in the Master track.</p> <p>Phases:</p> <p>The course is structured in 3 phases:</p> <ul style="list-style-type: none"> -Lectures; excursion; intensive learning -Sketch design of 2-3 options; presentation of options; choice of one option -Preliminary design of the chosen option; final presentation <p>The first phase includes lectures by professors, external experts and architectural/engineering firms. During the excursion, the project site is visited. Intensive sessions allow studying and practicing group dynamics, collaborative work, computational design.</p> <p>The second phase focuses on the design of multiple options. The daily design activities are facilitated by tutors who are expert in the disciplines. Each discipline has a weekly time for individual consults. During a presentation, one design option is chosen for further development.</p> <p>The mid-term presentation is facilitated by external experts. Feedback by them and tutors inform the design and decision-making. Following, the external experts give a (public) lecture.</p> <p>After the mid-term presentation, the design option is detailed with the team, leading to the end presentation. The end presentation is an important event with external experts assessing the designs. The design is summarised in reports about each discipline.</p> <p>Site:</p> <p>The assignment has an actual site where the building is planned. Past examples are in Amsterdam, Rotterdam, London, Brussels, Guangzhou.</p> <p>Objectives:</p> <p>Collaborative design</p> <ul style="list-style-type: none"> -Working together with different disciplines (different goals and backgrounds) -Realistic design environment <p>Sustainable design</p> <ul style="list-style-type: none"> -Definition of sustainability for project -Contribution of all disciplines to holistic sustainable design -Development of low/zero/plus energy design <p>Computational Design</p> <ul style="list-style-type: none"> -Collaborative digital workflow across disciplines / BIM 	

- Parametric design strategies/methods
- Performance analysis with simulation tools
- Feedback loops between numeric assessments and geometric modelling
- Digital interaction between design, engineering, analysis, manufacturing and construction

Architectural Design

- Interaction architecture/masterplan/environmental context
- Development of architectural design concepts
- Integration of structural, façade, climate concepts into architectural design
- Integration of sustainability and construction into architectural design
- Development of preliminary design

Structural Design

- Development of structural concepts
- Development of concept design
- Evaluation of different structural systems in relation to architectural design
- Integration with architecture, façade, climate design
- Dimensioning of structural elements
- Development of preliminary design

Climate design

- Developments of climate and building services concept
- Development of conceptual design
- Evaluation of different climate and building services systems in relation to architectural design
- Integration with architecture, structure, façade
- Dimensioning of HVAC installations
- Development of preliminary design

Façade design

- Development of façade concepts
- Developments of conceptual design
- Evaluation of different façade systems in relation to architectural and climate design
- Integration with architecture, structure, building services

Project and construction management

- Control of objectives, tasks, deliverables
- Facilitation of the group process
- Prediction of income and building costs; optimisation
- Development of site management and logistics
- Development of construction methods/planning

Study Goals

The student is able to design a coherent, significant, elaborated, correct and innovative design - on mainline and on aspects on MSC 2 level.

Specified for this course:

- After successful completion of the course, the student will be able to:
- work in an interdisciplinary design process;
 - understand and apply discipline-related knowledge in projects for big or tall buildings.
 - develop design strategies to achieve high building performances;
 - integrate numeric analysis and simulations to address design choices.

Education Method

In this course, the education methods are:

- Lectures by professors and specialists
- Collaborative working sessions with other students
- Exposure to external architectural practice and external experts
- Consults with tutors
- Making presentation and receiving/integrating feedback

Special is the involvement of external practitioners and external experts linking this course to practice.

For this course several multidisciplinary teams of students are formed, which are each responsible for one integral design. Each student has a different role in the design team and is tutored by instructors specialized in her/his discipline. When possible, students take roles according to their specialization during the Master studies.

Apart from focussing on his/her own discipline, the aim for each team-member is to achieve the best integral design paying special attention to collaborative design, sustainable design and computational design.

Feedback is received during the mid-term and final presentation from the external experts and tutors.

Literature and Study Materials

More specific literature is provided at the start of the course. The literature below provides an indication on relevant general content.

Tall Buildings

- Kloft, E., Eisele, J., (Ed), (2003) High-Rise Manual, Hardcover
- Ng, E. (Ed.). (2010) Designing high-density cities for social and environmental sustainability. London, Earthscan.
- Ali MM, Moon K. (2007) Structural developments in tall buildings: currents trends and future prospects. Architectural Science Review 50(3): 205223.
- Baker WF, Korista DS, Novak LC. (2008) Engineering the worlds tallestBurj Dubai., In The CTBUH 8th World Congress Tall & Green: Typology for a Sustainable Urban Future, Dubai; 110.
- Brown, N. C., & Mueller, C. T. (2016) Design for structural and energy performance of long span buildings using geometric multi-objective optimization. Energy and Buildings, 127, 748-761. Cross,P., Vesey,D., Chan, C.M., (2007) High-Rise Buildings. In Melchers, R.E., Hough, R., (Ed), Modeling complex engineering structures, ASCE.
- Stylianios, D., Charitou, R., Hesselgren, L., (2006) Computational Methods on Tall Buildings - The Bishopsgate Tower, Communicating Space(s) In proceedings of eCAADe 2006, 778-785.
- Almusharaf, Ayman M.; Mahjoub Elnimeiri (2010) A Performance-Based Design Approach for Early Tall Building Form Development , CAAD - Cities Sustainability, Proceedings of ASCAAD 2010, 39-50.
- Kimpian, J., Mason, J., Coenders, J., Jestico, D., Watts, S., (2009) Sustainably Tall: Investment, Energy, Life Cycle., In proceedings of ACADIA 2009: reForm() - Building a Better Tomorrow, 130-143.
- The Structural Design of Tall and Special Buildings, International Journal, John Wiley & Sons, Ltd
- Moon K, (2008) Sustainable structural engineering strategies for tall buildings. In: The Structural Design of Tall and Special Buildings, Special Issue: CTBUH 2nd Annual Special Edition: Tall Sustainability 17(5): 895914.
- Taranath, BS, (2011) Structural Analysis and Design of Tall Buildings: Steel and Composite Construction. Taylor & Francis.
- Taranath, BS, (1988) Structural Analysis and Design of Tall Buildings. McGraw-Hill, New York.
- Schueller, W., (1986) High-Rise Building Structures (2nd edn.)Robert E. Krieger Publication Company, USA.

Big buildings

Barnes, M., Dickson, M., (Ed.), Widespan Roof Structures, Thomas Telford, London, 2000

Hough, R., Carfrae, T., *Lightweight Long-Span Roofs*. In Melchers, R.E., Hough, R., (Ed), *Modeling complex engineering structures*, ASCE Publications, 2007

Imbert F., KathrynStutts Frost, Al Fisher, Andrew Witt, Vincent Tourre, and Benjamin Koren, (2012), *Concurrent geometric, structural and environmental design: Louvre abu dhabi*. In *Advances in Architectural Geometry*, 7790.

Kawaguchi, M., (1991) *Design problems of long span spatial structures*. *Eng. Struct.* 13, 144163.

Majowiecki, M., (2005) *Structural architecture for large roofs: concepts and realizations*. *Bautechnik*, 82(3): 147156.

Majowiecki, M. (1990) *Observations on theoretical and experimental investigations on lightweight wide span coverings*, International Association for Wind Engineering, ANIV.

Hladik, Pavel; Clive J Lewis (2010) *Singapore National Stadium Roof*, *International Journal of Architectural Computing* 8(3): 257-278

Shepherd, P., & Hudson, R. (2007) *Parametric definition of Landowne road stadium*. in: *International association of shell and spatial structures*, Venice, Italy, 2007,CD-ROM.

Hudson, R. (2008) *Frameworks for practical parametric design in architecture*. In: Pottman, H., Hofer, M. & Kilian,A. (eds), *Advances in architectural geometry*. Vienna, Austria,17-20.

Sanchez-Alvarez J, (2005) *Materializing geometry: the free-form reticulated roof structures for the new Milan Fair*. In: *Proceedings of AEC2005 Symposium*, Rotterdam, NL.

Assessment

Presentations and Reports

Assessment is twofold:

- Group assessment for integral group design based on presentations
- Individual assessment for discipline report

The students mark is a combination of the group assessment and individual assessment.

Special Information

The maximum marking period is 15 work days.

Remarks

The course is in English - spoken and written.

Period of Education

Quarter

AR0037	Studio Making	12
Responsible Instructor	Ir. H.A. van Bennekom	
Responsible Instructor	Ir. S.T. Bakker	
Course Coordinator	Ir. H.A. van Bennekom	
Education Period	3 4	
Start Education	3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	completed MSc1	
Course Contents	<p>"Studio Making" is a design studio that offers realistic design challenges, with real external partners, embedded in a series of interesting lectures and site visits. The topics and assignments will be mainly focussed on designing new ideas (based on solid research on the local needs and context) to increase and support circular processes in which demolition waste becomes an ingredient in new concrete. By doing this, the new results will therefor probably posses exiting, unexpected, new qualities and possibilities.</p> <p>TU Delft/Complex Projects is participating in an international project team of researchers, designers and builders that are seeking new applications with re-used raw materials (demolished concrete, brick and tiles). The TU Delft/Complex Projects is especially asked to participate in this international project because of its educational, research and student design qualities. "Studio Making" will be dedicated to designing new applications with recycled concrete and other raw materials, for real projects through western Europe. The sites will be visited during the course, and our designs will be discussed and evaluated with local parties and stakeholders in order to be realized.</p> <p>The Design "Studio Making" builds on the successful approach and contents of the 3ects course 'Making', in which students explore new design possibilities through hands-on experimenting and modeling with concrete, supported by lectures, site visits and design consulting.</p>	
Course Contents Continuation	<p>About 50% of primary raw materials in the EU are used in the building sector. At the same time, this building sector is also responsible for about 35% of all wastes. Within the construction and demolition wastes, components like concrete, bricks, tiles and ceramics have very high potential to be applied as recycled aggregates and sands in new types of concrete etc. However, until now, recycled materials are mostly down-cycled to be used as filling materials in infrastructure projects. Although the recycling quota in North-West Europe is more than 70%, but less than 4% is re-used for the original purpose: concrete production. To support recycles and further development of sustainable improvements, this studio will design new applications of concrete in which recycled aggregates define new qualities and possibilities</p>	
Study Goals	<p>the student:</p> <ul style="list-style-type: none"> - Has developed further skills in architectural design satisfying both aesthetic and technical / functional requirements. - During this trajectory skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology, social and human sciences. - Additionally, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and societys needs, including environmental and waste aspects. - During Master 1, 2, 3 & 4 skills are acquired by cumulation to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing. - skills are acquired to incorporate an understanding of the design process with regard to structural design, materialisation of buildings, comfort and climate control. 	
Education Method	design, tests, presentations, site visit, visiting critics	
Assessment	design and research book	
Special Information	The maximum marking period is 10 work days.	
Elective	Yes	
Tags	Challenging Design Drawing Energy & Industry Projects Prototyping Sustainability	
Period of Education	week 3.8 kick off, week 4.1-4.11 studio	
Leerstoel	CP	
Minimum aantal deelnemers	2	
Maximum aantal deelnemers	24	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR0052	Design Studio: Architecture and Urbanism Beyond Oil	12
Responsible Instructor	Prof.dr.ing. C.M. Hein	
Course Coordinator	Ir. H.A. van Bennekom	
Contact Hours / Week x/x/x/x	0/X/0/X	
Education Period	2 4	
Start Education	2 4	
Exam Period	none	
Course Language	English	
Expected prior knowledge	completed MSc1	
Course Contents	<p>An end to our petroleum-based lifestyles and the use of renewable energies will impact our cities and buildings. The Studio Architecture and Urbanism Beyond Oil argues that we have to first understand the enormous collective presence of oil in the built environment, its impact on production processes, financial flows, and associated social and cultural patterns in our everyday environment, and the long history of oils impact on our lives. Then, we can imagine the needs and spaces of the future and transform our existing landscapes, cities and buildings. The Architecture and Urbanism Beyond Oil studio starts with an investigation of how petroleum its extraction, refining, transformation, and consumption has shaped our built environment in visible and invisible ways around the world over the last 150 years. Some students have built on their history thesis exploring oil depictions in Hollywood films or evolving mental maps of oil as a foundation or design. Others have explored the historical development of sustainable architecture through the elective "Building Green." The studio identifies global landscapes of energy and oil. It maps and translates the findings into accessible visuals, with the goal to develop an architectural, urban or landscape project that address these findings and propose new uses and solutions. The studio has included analysis of the relevance of oil for the urban and architectural form of the port and city of Rotterdam. Students have imagined possible transition trajectories, notably suggesting a recuperation of the oil-dedicated spaces from the sea-side and new connections across the river. Other students have imagined the transformation of gas stations as lifestyle hubs, roads as energy generators, or floating self-sustaining cities. Design strategies developed in the studio can be applied to cities around the globe and possible research destinations including Rotterdam, Dunkerque, Philadelphia, Houston, and Curacao.</p>	
Study Goals	<p>Architectural and urban design are anchored in larger political, economic, social and cultural contexts. Students will learn how to place their design into the global context of oil as a commodity, the generator of financial flows, and as a mindset. They will do primary research on Rotterdam as a case study. They will work in groups on a chosen location and develop a project that acknowledges the larger theoretical and methodological premises of the course and that takes into account the different disciplinary backgrounds of the participating students.</p>	
	<p>The course is open to students in architecture, urbanism, real estate, heritage, architectural history, history and media studies, etc. and mirrors in its composition the nature of design practice.</p>	
Education Method	Lectures, discussions, and studio design work.	
Assessment	Grades will be based on course participation, assignments and the final project.	
Special Information	The maximum marking period is 10 work days.	
	Open for students from all Dutch institutions. External students please check: http://tinyurl.com/qam99u4	
Period of Education	Quarter	
Minimum aantal deelnemers	4	
Maximum aantal deelnemers	24	

AR0067	Architecture & Urban Design	12
Responsible Instructor	Dr.ir. M.G.A.D. Hartevelde	
Responsible Instructor	Dr.ir. R. Cavallo	
Course Coordinator	Dr.ir. M.G.A.D. Hartevelde	
Contact Hours / Week x/x/x/x	8 hours per week	
Education Period	4	
Start Education	4	
Exam Period	none	
Course Language	English	
Expected prior knowledge	Skills are acquired to incorporate an understanding of the design (process) attained with regard to architectural/urban history, theory, art and technology as well as relevant general knowledge of human sciences. Additionally, skills are acquired to incorporate an understanding of the design (process) attained with regard to the relation between buildings, public spaces and society's needs, including environmental aspects. During the trajectory of the Master 1, 2, 3 & 4 studios, the complexity of the architectural and urban design increases leading to a level fit for architectural/urban practice.	
Course Contents	<p>Interventions in the contemporary city need constantly to be grounded on sharp design approaches in order to respond adequately to the necessities of our times.</p> <p>Nowadays we meet in public atria and do shopping in malls; we move along covered walkways and go from street to street by taking shortcuts through the buildings of a city block. All kinds of buildings hybridised and became multi-functional anchors in the city serving thousands of people daily. The railway stations of today are entangled with the urban tissue, airports have become cities, conference centres and world expos temporarily change the urban composition, and museums are also leisure centres. In the recent decades, the amount and the proportion of public space within urban buildings has steadily increased, with much of it forming part of a larger interior and exterior pedestrian network. On the other hand the amount and size of public buildings within the urban context increased too, changing the way the contemporary city is constructed. However, still rarely designers approach the city as architecture or the building as urban design.</p> <p>For these reasons there is nowadays a great need of identifying the available design tools in order to plan effective future interventions in our cities. Particularly in the case of existing urban environments, design approaches require a conscious understanding of urban design as well as an adequate knowledge of changes in building typologies.</p> <p>In this design studio, architects and urban designers work together in the examination of the urban space as architectural space and the architectural space as urban space. In this experimental design project, students and staff are interested on one hand to the urban intervention in the built environment and its effect on architecture, and at the other hand to the architectural treatment of the city and its effect on urbanism.</p>	
Study Goals	<p>The student:</p> <ul style="list-style-type: none"> - understands the interrelation of architectural and urban design, to evaluate and create proposals for strategic interventions, with regard to spatial-social patterns and the culture of the city - evaluates skills in architectural and urban design to create an elaborate design proposal in typological terms related to use, ownership and meaning - creates an elaborate design proposal on the edge/overlap of both professions, satisfying formal, technical and functional requirements, including materialisation. 	
Education Method	Interactive studio work	
Assessment	Design / Research, presented in drawing form with written commentary and a model.	
Special Information	<p>The maximum marking period is 10 work days.</p> <p>The studio work includes an excursion to the site. Please, do not hesitate to inform with the course coordinators what this year's case studies is.</p>	
Period of Education	Quarter 4	

AR0072	Solar Decathlon	12
Responsible Instructor	Prof.dr.ir. A.A.J.F. van den Dobbelssteen	
Course Coordinator	Ir. P.G. Teeuw	
Contact Hours / Week x/x/x/x	8 hours per week	
Exam Period	none	
Course Language	English	
Course Contents	<p>The Solar Decathlon is a bi-annual competition of solar homes built by universities across the world. TU Delft is also participating in this competition.</p> <p>This course is connected to active involvement of students participating in the TU Delft Solar Decathlon team. This course deals with the architectural and technical design and elaboration of the TU Delft entry to the Solar Decathlon competition.</p>	
Study Goals	<p>The student is able to design a coherent, significant, elaborated, correct and innovative design - on mainline and on aspects on MSC 2 level.</p> <p>Specified for this course; the student is able to:</p> <ul style="list-style-type: none"> - collaborate in a team with other students - work on a joint design of an energy-neutral or energy-producing house - integrate various aspects of sustainability into the design of the house - elaborate on components of the design challenge, related to architectural design, structural design and engineering, envelope design and engineering, climate design and engineering, HVAC systems, electrical systems etc. 	
Education Method	Tutorials, workshops, (mid-term) presentations, reporting, exhibiting	
Assessment	The design, report and oral presentations will be assessed by different criteria. Also the group attitude and pro-activity of the student will be reviewed.	
Period of Education	Semester	

AR0076	The New Town: Design Studio Africa		12
Responsible Instructor	M.J. Emmerik		
Responsible Instructor	Prof.dr. W.A.J. Vanstiphout		
Course Coordinator	M.J. Emmerik		
Instructor	Prof.dr. W.A.J. Vanstiphout		
Instructor	M.J. Emmerik		
Education Period	4		
Start Education	4		
Exam Period	none		
Course Language	English		
Summary	<p>This Research and Design studio is focused on one of the fastest urbanizing regions in the world: the African west coast between Cote d'Ivoire and Nigeria where more than a dozen agglomerations with millions of inhabitants are stretched over an area of approximately 500 miles. This creates an urban area with a potential coherence and accumulative value comparable to regions such as the East Coast of the United States or the Pearl River Delta in China.</p>		
	<p>The African 500 mile city however, in contrast to its American and Chinese stretches across five countries, with different political systems, economies working at different speeds and complex relationships with each other. On an urban level, they are connected by a dynamic of urbanization due to immigration and economic growth which brings huge pressures on the livability and ecological sustainability of the area. Conversely, the urbanization process itself is hugely pressurized by the effects of climate change, making linear city between Accra and Lagos one of the areas most at risk both from the rising of the sea level, and the swelling of rivers such as the Volta and the Niger.</p>		
	<p>But there is more holding this region together. This part of West Africa has a very old, precolonial, precolonial history of urban civilization and states, with great examples in the Dahomey and Benin kingdoms. This shared history was however hacked into pieces during colonial times, that also brought with them a series of trading posts later developing into the metropolises of today. There is, in other words a large historical heritage to be found on the ground as a cultural backbone to the 500 Mile City.</p>		
	<p>In this research and design studio students develop Urban and Architectural design projects based on extensive fieldwork in West Africa, exploring this area through the perspective of modern new town planning and try to conceptualize and explain these conurbation as part of the present global urbanization. How can we understand these large urban areas as a physical manifestation of its various backgrounds? How can we use the design models used by architects and urban planners for new town planning in the past to deal with this rapid urban growth? What are the contemporary planning issues of the new cities of the 21st century? Can the developed and developing nations learn from each other in the planning and development of new towns? And what effects does this have on the daily lives and the economies of the regions involved?</p>		
	<p>This course, in combination with The New Town: Lecture series (AR0023) is open for students from the master tracks in Architecture (MSc2) and Urbanism (Q4 elective). It is organized by the chair of Design as Politics in collaboration with the International New Towns Institute.</p>		
Course Contents	<p>In this research and design studio you will develop Urban and Architectural design projects based on extensive fieldwork in West Africa. We will concentrate on a massive transnational conurbation that is forming between Abidjan (Ivory Coast) and Lagos (Nigeria). We will explore this area through the perspective of modern new town planning and try to conceptualize and explain these conurbation as part of the present global urbanization.</p>		
	<p>The aim of the studio is to understand the development of this unplanned megacity, its effects on the daily life and local economies, and to explore the role that design and new town planning might play on many different scales in this urban situation where there is no strong role for a central state.</p>		
Study Goals	<p>After successful completion of this course you are able to:</p>		
	<p>Analyze the physical manifestation of rapidly urbanizing areas in relation to the social-economic and political context in which they emerge and to transform your findings into a design brief.</p>		
	<p>Develop strategic architectural or urban interventions that guide or facilitate rapid urban growth.</p>		
	<p>Reflect on western planning principles and their application to the African context and visa versa.</p>		
Education Method	<p>Design tutoring / Studio sessions / Presentations / Field research</p>		
	<p>One meeting each week, consisting of design tutoring and collective pin-up sessions combined with extensive field research.</p>		
Course Relations	<p>This studio is complemented by a theoretical introduction to New Town planning (AR0033). Enrollment to this lecture series is compulsory for students participating in this studio.</p>		
Assessment	<p>Assessment takes place based on a design project, your attendance and participation during the field research and a final presentation. More information will follow at the beginning of the course.</p>		
Remarks	<p>This studio is organized by the chair of Design as Politics in collaboration with the International New Town Institute, and a number of international global parties such as the Dutch ministry for foreign affairs, UN Habitat and local universities and development agencies. For more information see: www.designaspolitics.nl and www.newtowninstitute.org</p>		
	<p>Participating students are required to cover additional traveling expenses for a field trip to Africa (around 1300,- for travel and accommodation.)</p>		
Period of Education	<p>This course starts in the second semester (spring 2018)</p>		

AR0077	The Why Factory MSc2 Design Studio	12
Responsible Instructor	Prof.ir. W.G.M. Maas	
Course Coordinator	J. Arpa Fernandez	
Responsible for assignments	S. Gargaretas	
Contact Hours / Week x/x/x/x	0/0/0/X	
Education Period	4	
Start Education	4	
Exam Period	none	
Course Language	English	
Course Contents	<p>This course is a MSc2 studio, and is organized as a think tank. Studios at The Why Factory are content-driven design and research studios with a practical and theoretical scope. MSc2 studios are research labs and platforms that aim to analyse, theorize and construct future cities. They conduct a variety of investigations within the given world, and produce future scenarios beyond it: from universal to specific and global to local.</p> <p>MSc2 studios start with a specific brief and a statement on the future of urban life. Based on the brief, future scenarios will be developed leading to visionary, city-related designs.</p> <p>Students develop their specific approach to the brief and define the necessary scientific research. Calculations, simulations or modelling to support the studio work are elaborated in a parallel seminar: the MSc2 Future Models I seminar.</p> <p>The results of the research lead to a design project with consequent logic, convincing argumentation and illustrative and fantastic visuals.</p>	
Study Goals	<p>Upon completion of the Master 1, 2, 3 & 4 studio trajectory, the student:</p> <ul style="list-style-type: none"> - Has developed the necessary skills in architectural design that satisfy programmatic, aesthetic and technical requirements. During the Masters trajectory, the complexity of the architectural design increases, leading to the level required for professional practice. - During this period, skills are acquired to increasingly incorporate an understanding of design processes, architectural history and theory, art, technology and human sciences. - Additionally, skills are acquired to incorporate into design an understanding of the relation between territory, buildings, spaces and societies needs, including environmental aspects. - During Master 1, 2, 3 & 4, skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing. - Together with the building technology training, during Master 1, 2, 3 & 4 skills are acquired to incorporate an understanding of the design process with regard to structural design, materialisation of buildings, comfort and climate control. 	
Education Method	Atelier: 150 hours Self study: 270 hours	
Assessment	Presentation	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Quarter	
Maximum aantal deelnemers	30	

AR0086	Infrastructure and Environment Design	12
Responsible Instructor	Dr. F.L. Hooimeijer	
Responsible Instructor	Dr.ir. T. Kuzniecowa Bacchin	
Course Coordinator	Dr. F.L. Hooimeijer	
Instructor	Dr.ir. T. Kuzniecowa Bacchin	
Instructor	Dr. F.L. Hooimeijer	
Contact Hours / Week x/x/x/x	0/0/0/X	
Education Period	4	
Start Education	4	
Exam Period	none	
Course Language	English	
Course Contents	<p>With urgent urban challenges such as climate adaptation, energy transition, and continued urbanisation, the urgency of integrating planning and design with urban engineering increases. The implementation of new technological interventions and the utilisation of the natural system is hampered by the lack of an integrated approach incorporating urban planning and design decisions. Meanwhile, urban and economic growth increasingly competes for infrastructure and environment, affecting the success or failure of the daily operating systems of cities and thereby urban competitiveness. The challenge is to fundamentally re-think the urban landscape in light of new technologies. The question is how to renew existing cities by integrating the parameters of the natural system, as well as technological innovations directly into urban development opportunities arising from spatial planning and design.</p> <p>In order to stimulate and design the synergy between design and engineering this course offers the possibility for architects, urban designers and landscape architects to get well acquainted with the concepts and language of civil engineers on the subject of infrastructure and environment; at the same time the civil engineers will get acquainted with the world and language of designers.</p> <p>In order to create an emerging path where synergy between the disciplines makes sure that technology becomes embedded in the design process, this course offers possibilities for both urban designers and civil engineers to get well acquainted with each others discipline. This is achieved by collaborating with the course Technology and Practice Water Management in Urban Areas at (CT5510) that elaborates on the technology of building site preparation and will show the collaborative worlds of soil and water.</p>	
Study Goals	<p>The goal of this course is that students will be able to:</p> <ul style="list-style-type: none"> Formulate their design perspective that is based in a conceptual or theoretical framework. Identify and discuss the synergy between natural conditions and technological potential and possibilities in urban environments. Analyse and design infrastructures on a regional scale and on the scale of the section. Identify and discuss the tension between public and private development in infrastructures and environments. Apply methods concerning the appraisal of sustainable urban environments and infrastructure. Demonstrate in a design the connection between the natural system and technical possibilities in urban environments. Be able to translate analyses into design and the design into a formal plan. Perform inter-disciplinary working. 	
Education Method	<p>Readings in the field of knowledge brokerage, technical entrepreneurs, landscape ecology, sustainability and urban theory for a better understanding and theoretical framing of the individual project.</p> <p>Exercises in building a theoretical or conceptual framework and translating analyses into design.</p> <p>Interdisciplinary learning by taking class with civil engineers and policy students in which understanding can be created for each others knowledge and skills, where fences between the knowledge fields can be broken down, where contacts can be made for later in professional careers. The Urban Water Management course starts in Q3 with 8 lectures of which the compulsory ones are indicated in the schedule, the others can be viewed on colleggerama. In Q 4 there is an assignment, excursion and workshop with the urban water management students.</p> <p>Workshops with professionals and with students of technical background to understand differences in language and concepts and learn to apply the technical information to the spatial context.</p> <p>Individual or group project as elaboration of the workshops.</p> <p>Project in practice: research assignment with a partner in practice to answer to the goals of this course. It needs to be with a company or institute, municipal department with a technical focus. With them you need to arrange that you work on a certain research or design project that can be done in 10 weeks, minus the time you need for the other activities in this course and your other electives. You can also take the summer months to extend the internship. The result is a report where, taking in consideration the learning goals for this course, a reflection is done on the project and/or way of working.</p>	
Literature and Study Materials	Literature list is given with the course outline. It covers theory on sustainability, knowledge brokerage, eco system services, urban ecology, infrastructure and urban design.	
Assessment	<p>The course results in an individual project or a project in practice. The content of individual project is:</p> <ol style="list-style-type: none"> 1) Use of theory to frame your research and design perspective. 2) Research and analyses of technical data/infrastructure of your site resulting in an environmental and infrastructure potential map. 3) Research and analyses of the surface of your site, resulting in a surface potential map. 4) Synthesis between 2 and 3 and together with 1 resulting in a (spatial) concept. 5) Concept translated in a performance based urban design that will be translated into a formal plan. 	
Remarks	<p>This course is combined with: Technology and practice Water management in urban areas CT5510 4ects</p> <p>Summary: master course on design and planning of the urban water management system. Water fluxes and relevant processes in water and soil. Storm water, surface water and groundwater drainage design (quantity and quality) in interrelation with subsidence and based on functional demands and standards. Storm water infiltration and building site preparation. Water wise spatial planning and urbanism. Water management policy development.</p> <p>Responsible Professor: Nick van der Giesen Course Coordinator: Frans van der Ven</p> <p>This course includes the course AR0093 Infrastructure and Environment Method Module. It is not possible to take both this course and AR0093.</p>	
Period of Education	Quarter	

AR0094	Bucky Lab A	12
Responsible Instructor	Dr.ing. M. Bilow	
Course Coordinator	Dr.ing. M. Bilow	
Education Period	3 4	
Start Education	3	
Exam Period	none	
Course Language	English	
Course Contents	<p>The focus of the semester is an innovative building construction or facade design for an architectural related building, this may be a part of a building, a pavillion or a facade. The task is a building component in which all the important technical and architectural aspects of a building are integrated in. The first three weeks students individually research and analyse the assignment in order to come up with an innovative concept. The remaining weeks of the semester are dedicated to a design by research process in which all the main aspects of the design, from applied mechanics, material propertie to production techniques are researched ending in an integrated final design. Computer modeling, virtual and full scale material prototyping are part of the process.</p> <p>This course is a shorter version of the already known bucky lab, so expect the same fun but in a smaller package ! We try to focus more on the construction and will reduce the building physics and structural engineering part.</p>	
Study Goals	<p>The student is able to design a coherent, significant, elaborated, correct and innovative design - on mainline and on aspects on MSC 2 level.</p> <p>Specified for this course: the student</p> <ul style="list-style-type: none"> - has an understanding of the relation between design, society, realisation, materialisation and functioning. - is able to design and evaluate building components based on their function and performance. 	
Education Method	Design consultation and computer modeling. Design by prototyping	
Assessment	Individual report of innovative concept and reports in team of two students of design by research process from concept to final design, main focus the level of integration of all the researched aspects.	
Special Information	The maximum marking period is 10 work days.	
Period of Education	summer semester starting in week 6	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR0096	EXTREME technology	12
Responsible Instructor	Prof.dr.ing. U. Knaack	
Course Coordinator	Ir. R. Schroën	
Contact Hours / Week	12 hours per week x/x/x/x	
Education Period	4	
Start Education	4	
Exam Period	none	
Course Language	English	
Course Contents	<p>The project is about building in a extreme situation, in respect to climate, location and function. Essence is the interaction between the extreme circumstances, the technical solutions, and the architecture. Extreme circumstances do request technical solutions which will be the starting point for the design development. The designer has to direct the 'engineer questions and answers', towards the articulation of the form which is based on integration of aesthetic and technology.</p> <p>"Die Architectur des 21 Jahrhunderts hat ihre Unschuld verloren, Gebaude müssen etwas leisten" Stefan Behnisch.</p> <p>In the end the student is able to understand technical solutions, to reflect on them, to applicate them and to transform them. And the student is able to design a coherent design result.</p>	
Study Goals	<p>The student is able to design a coherent, significant, elaborated, correct and innovative design - on mainline and on aspects on MSC 2 level.</p> <p>Specified for this course:</p> <p>In the end the student is able to design a healthy coherent building in extreme conditions with a focus on technical solutions: the student is able to apply, reflect and transform principles concerning climate, construction and structure.</p>	
Education Method	Design project	
Assessment	The design result including the aspects structure, climate and envelope.	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR0098	Sustainability project design and elaboration	12
Responsible Instructor	Prof.ir. M.F. Asselbergs	
Responsible Instructor	Prof.dr.ir. A.A.J.F. van den Dobbelsteen	
Course Coordinator	Ir. P.G. Teeuw	
Course Language	English	
Course Contents	This course is connected to active involvement of students participating in design teams related to practice. This course deals with the architectural and technical design and elaboration.	
Study Goals	The student is able to - collaborate in a team with other students - work on a joint design of a specific (building) design project - integrate various aspects of sustainability into the design of the project - elaborate on components of the design challenge, related to architectural design, structural design en engineering, envelope design and engineering, climate design and engineering, etc.	
Education Method	Tutorials, workshops, (mid-term) presentations, reporting, exhibiting (if applicable)	
Assessment	Portfolio of the design, report and oral presentations will be assessed by different criteria. Also the group attitude and pro-activity of the student will be reviewed. All depending on the specific project .	
Period of Education	Varies.	

AR0149	ON SITE, Landscape architectonic explorations	15
Responsible Instructor	Dr.ir. I. Bobbink	
Course Coordinator	Dr.ir. I. Bobbink	
Education Period	4	
Start Education	4	
Exam Period	none	
Course Language	English	
Required for	students need to be master students	
Expected prior knowledge	design skills	
Summary	Please check the presentations on the Q4-free choice projects for more specific information about the site and the exact theme - this differs every year. In the course, we will study on how to define identity and how to transform ordinary spaces into specific places. We will experiment with different methods and tools. Depending on the theme we might operate as one group.	
Course Contents	In this course, you will learn how to analyse, interpret the spatial identity of a site and translate it into a landscape architectonic design. The scale of the assignment can differ from a garden to an (urban)landscape. Landscapes and cities with a strong identity are highly valued by people. Identity, heritage, continuity and transformation are important notions of todays design practise. In the course, we will study on how to define identity and how to transform ordinary spaces into specific places. Through fieldwork, the site will be studied across experimental analysis methods and techniques, also borrowed from other disciplines, like social sciences and art. The experimental analysis deals with questions related to a site exploration and notation and how to construct a design concept. It depicts the subjective, dynamic and intangible characteristics of the place such as: processes, cultural activities, memories, stories, experiences, rituals by for examples sensorial perception, tracing narratives, investigating historic sources, mapping spaces in various ways and working with experimental photography, etc. As a frame, the course offers an interdisciplinary debate on the theory of place making which feeds the design experiment. These design experiments can become models, films or real constructions in the public realm. The course will involve third parties, for example ongoing research in the section of landscape architecture, assignment from practise or can be part of an event like the Oerol festival on Terschelling etc.	
Study Goals	- to acquire knowledge of the physical form of a specific landscape; - to acquire and use theoretical knowledge on place making; - to study, visualise and edit the topography and spatial identity of a landscape (experimental analyses); - to build a relationship among landscape architecture and other fields of science like geology, archaeology, ecology, history, anthropology, and other creative disciplines like art, architecture and urbanism; - to design a landscape architectonic space.	
Education Method	studio work (experimenting) interactieve lectures workshops fieldwork	
Assessment	oral presentation with the help of: drawings models films or real constructions in the public realm	
Period of Education	Quarter 4	
Minimum aantal deelnemers	15	
Maximum aantal deelnemers	15	

AR0225	MSc2 Studio: Urban (Re)Development Game	12
Responsible Instructor	Y. Chen	
Course Coordinator	Y. Chen	
Instructor	Prof.dr. E.M. van Bueren	
Instructor	Dr.mr. F.A.M. Hobma	
Instructor	Mr.dr. P. Jong	
Instructor	Dr. C. Maat	
Instructor	Dr.ir. M. Spaans	
Instructor	Dr.ir. P.L.M. Stouten	
Instructor	Ir. H.W. de Wolff	
Instructor	Dr.ir. R. Binnekamp	
Instructor	Dr.ir. S. Zijlstra	
Instructor	Dr.ir. L. Volker	
Instructor	Dr.ir. R.S. van der Kuij	
Instructor	Dr.ir. T.A. Daamen	
Instructor	Dr.ir. E.W.T.M. Heurkens	
Instructor	Prof.dr. P.J. Boelhouwer	
Instructor	Drs. P.W. Koppels	
Instructor	Dr.ing. G.A. van Bortel	
Instructor	Y. Chen	
Instructor	Dr.ir. E.H. Stolk	
Instructor	Dr. W.J. Verheul	
Instructor	Ir. L.G.C. Heijnders	
Instructor	Dr. I. Nase	
Contact Hours / Week	0/0/0/X	
x/x/x/x		
Education Period	4	
Start Education	4	
Exam Period	4	
Course Language	English	
Expected prior knowledge	Semester 1 of Master course from Faculty of Architecture and the Built Environment	
Summary	The course is meant for master students from the department of Architecture and Urbanism who have not followed any economic course. During this unit course the theory and the practice of managing urban (re)development processes is explored through lectures, role-playing simulation in urban (re)development project at area scale, as well as at the portfolio and object scale. A third component is finance.	
Course Contents	The unit of course aims to train students to grasp an integral approach when managing urban (re)development both at the urban area scale and at the portfolio and object scale. Through a role-playing simulation project, students will be given design assignments that drive them to (re)develop a complex urban location with both residential and non-residential elements.	
	The assignment aims at drawing up a development plan for the location. The students, through this exercise, will play the roles of local authorities and private actors as well as third parties of the area and negotiate in their respect roles to reach an optimal solution. Students will conduct feasibility analysis of a particular real estate objective at the portfolio and object scale.	
	This unit will equip students with sufficient skills to deal with the assignment in the simulation with a series of lectures and sessions of fieldwork, role assistance and group supervision. Students will learn about the context, goal, actors and means of realisation related to each phase of the urban area development cycle. In this process, students have to consider how to make a balance between market demand, spatial quality requirement with available means.	
Study Goals	The unit aims to enable students to:	
	- understand the changing context of global and local environment and economic, social and cultural elements which contribute to various urban problems	
	- understand the context, content, players and means of implementation during the cyclic phases of urban area development; identify positions, objectives and means as well as strategies of involved parties in different phases	
	- analyze the social-economical and urban context as well as the status and function the area can possibly achieve in the future	
	- set up functional programs for the area in question; identify spatial possibilities and, the feasibility and financial consequences of investments; develop institutional and financial plans for different phases in order to manage and oversee the development design and implementation process, thereby effectively integrating the input of the various actors in the project	
	- conduct feasibility studies of real estate portfolio strategy with involved and/or potential stakeholders and the cost-benefit analysis of a particular building block at the object level	
	- integrate multidisciplinary knowledge through teamwork, negotiate and communicate with different parties, present project results and reflect the development process with an analytical report	
Education Method	The program of The Urban (Re)development Game comprises three parts:	
	- Theory: the knowledge of the theory on managing urban development is acquired through lectures and literature study	
	- Practicum: the practice skills are acquired through role-playing in a management game, with support from role lectures, supporting literature and consultation provided by role assistance and group supervision. Students are asked to work on a master plan of a specific location and then examine its feasibility plan of a particular role at portfolio and object level.	
	-Real estate finance: the knowledge of finance is acquired through lectures and literature study	
Literature and Study Materials	The compulsory literature for Theory is:	
	Franzen, A., Hobma, F., de Jonge, H. and Wigmans, G (eds) (2011) Management of Urban Development Processes: governance, design, feasibility. Amsterdam: Technpress.	
	Adams, D. & S. Tiesdell (2012), Shaping Places: Urban Planning, Design and Development. London: Routledge.	
	Other digital compulsory and supporting literature is available from the blackboard and is updated yearly.	
Assessment	The result will be determined by:	
	- the theory component, assessed through individual 3,5 hour exam	
	- the practice component, assessed through the quality of design assignment, the quality of presentation performance, the quality of argument and reflection in the end report	
	- The finance component, assessed through assignment and exam	

Exam Hours	Theory: 3,0 hours
Special Information	The maximum marking period is 10 work days.
Period of Education	Quarter

AR0681	Heritage and Architecture Design Studio: Research and architectural design	12
Responsible Instructor	Ir. W.L.E.C. Meijers	
Responsible Instructor	Prof.ir. W. de Jonge	
Course Coordinator	Ir. W.L.E.C. Meijers	
Instructor	Ir. W.L.E.C. Meijers	
Instructor	Dr. S.A. Stroux	
Instructor	Ir. A.C. de Ridder	
Instructor	Ir. W. Willers	
Contact Hours / Week x/x/x/x	8 hours per week	
Education Period	3 4	
Start Education	3	
Exam Period	none	
Course Language	English	
Course Contents	The chair of Heritage & Design is concerned with re-designing and researching buildings of significance in cultural-historical context. In this studio the cultural, historical, societal and urban context of a built structure are analysed and interpreted in relation with architectural and technical features. Historical development, urban context, typology, materialisation, technical elaboration and related literature are the main issues in a synchronic method of analysing and re-designing. Students individually create a re-design that shows a meaningful translation of an intervention strategy into the spatial, functional, urban, material and technical design. The design choices are based in an understanding in relation to cultural value.	
Study Goals	Upon completion of the Master 2 studio the student is able to: - draw conclusions from analyses and present these in an academically substantiated and comprehensive way, - define a relevant design brief and create an architectural redesign for a building or ensemble that he/she has chosen as an etude, - apply professional knowledge and design tools related to architecture, building technology and cultural value, - focus on moral sensibility, analysis, creativity and judgement skills regarding architectural ethics - explain and reflect on meaning and design development with relevant presentational means - communicate design ideas at an advanced level through verbal presentations, visual and written media.	
Education Method	Design coaching in studio during educational weeks. The design studio features individual and group tutorials, and study specific to the design project.	
Literature and Study Materials	To be announced via the tutor and/or the coordinator and/or Brightspace.	
Assessment	Presentations will be held during the semester and a final presentation at the end of the semester. Drawings, texts, models.	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Q1 / Q2 / Q3 / Q4: semester weeks 1.6 - 2.10 / 3.6 - 4.11	
Leerstoel	Heritage & Architecture	
Maximum aantal deelnemers	45	

AR0896	Van Gezel tot Meester		21
Responsible Instructor	Ir. E.J.G.C. van Dooren		
Responsible Instructor	L.A.M. Willekens		
Course Coordinator	Ir. E.J.G.C. van Dooren		
Contact Hours / Week x/x/x/x	160 hours per semester		
Education Period	1 2		
Start Education	1		
Exam Period	none		
Course Language	Dutch		
Course Contents	<p>Didactiek in ontwerpprojecten In een stage (Bachelor eerste jaar) leer je onder supervisie het vak van ontwerpbegeleider; de ervaring en problemen die je opdoet in de stagegroep kun je terugkoppelen in de onderwijsgroep. In enkele werkcolleges wordt onderzocht hoe studenten te begeleiden in het leren ontwerpen.</p>		
Study Goals	<p>Ontwerpvaardigheid en ontwerpproces In een aantal ontwerp oefeningen wordt het ontwerpproces expliciet onderzocht. Door het ontwerpproces enkele keren te doorlopen en specifiek te bestuderen wordt inzicht verkregen in meer algemene principes tijdens het ontwerpen en de eigen, individuele inbreng; ook valkuilen kunnen zo aan het licht komen. Zoals een topsporter op onderdelen en het geheel traint om tot meesterschap te komen, zo kan een ontwerper ook zijn eigen ontwerpproces trainen. Door het kanaliseren van gewoontes en het bewust worden van essentiële ontwerpmomenten kom je tot meesterschap in het ontwerpproces.</p> <p>De student is in staat een coherent, betekenisvol, uitgewerkt, juist en innovatief ontwerp te maken en onderzoek te doen - op hoofdlijn en in details - op Msc 2 niveau.</p> <p>Specifiek voor deze cursus: de student</p> <ol style="list-style-type: none"> 1. heeft inzicht in het (eigen) ontwerpproces en in het (ontwerp)docentschap 2. is in staat korte ontwerp opdrachten te doen en heeft de basisvaardigheden als (assistent) ontwerp docent 3. is in staat een kort onderzoek te doen naar het (eigen) ontwerpproces en de aspecten van het ontwerpdocentschap 		
Education Method	<p>- stage als assistent-begeleider in een eerstejaars ontwerpproject - ontwerponderwijs op atelier (meerdere ontwerp opgaves) - enkele werkcolleges</p> <p>Kennis en toepassing zijn tijdens het leren met elkaar geïntegreerd. De cursus is opgebouwd uit een groot praktijk gedeelte (ontwerpen / begeleiden) met op een aantal momenten compacte input van kennis en theorie.</p> <p>Het ontwerp onderwijs vindt in principe plaats op dinsdag en vrijdag middagen, en een aantal werkcolleges op woensdagmiddag - wijzigingen in verband met de stage voorbehouden De stage vindt plaats in het tweede kwartaal.</p>		
Assessment	<p>Didactiek stageverslag waarin opgenomen een observatie en een reflectie (9 studiepunten). Ontwerpresultaten en reflectie op ontwerpproces (12 studiepunten).</p>		
Special Information	The maximum marking period is 10 work days.		
Period of Education	Semester		
Maximum aantal deelnemers	hangt af van beschikbare stageplaatsen		

AR2AD010	MSc2 Dwelling design studio 'Global Housing'	12
Responsible Instructor	Ir. H.A.F. Mooij	
Course Coordinator	P.S. van der Putt	
Instructor	Prof.ir. D.E. van Gameren	
Education Period	3	
Start Education	4	
Exam Period	3	
Course Language	none	
Course Contents	English	
Course Contents	The MSc 2 AR2AD010 Global Housing Studio focuses on the worldwide issue of affordable mass housing schemes. The assignment involves designing a housing project, with the aim of providing solutions that cater for the creation of socially and ecologically sustainable urban environments as an alternative to current practices of large-scale developments, public and private, based on models. Participating in the studio requires a site visit to Ahmedabad, India of approximately two weeks.	
Study Goals	Learning Goals MSc 1/2 GLOBAL HOUSING	
	After completion of this course the students is able to:	
	1. Recognise and explain morphological and typological qualities of urban housing neighbourhoods .	
	2. Formulate a design strategy for affordable housing in relation to densities, multiple user groups, access & circulation, privacy & community and patterns of daily life.	
	3. Design and develop an urban plan for affordable housing on a proposed site.	
	4. Design and develop an urban housing neighbourhood accomodating the various relations of the design strategy.	
	5. Design and develop different dwelling types in relation to specified needs and usability.	
	6. Identify and explain the qualities of the proposed design in relation to project references and experience.	
	7. Identify appropriate building techniques and construction systems to be employed as part and parcel of the design proposal.	
	8. Produce meaningful visual and physical outputs to communicate the project to an audience of experts.	
Education Method	Tutoring of the design progress in the design studio. Workshop week	
Assessment	Examination takes place in the form of a mid-term and final oral presentation of design and analysis in drawings and images, followed by an oral examination in questions and answers.	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Education starts in week 3.6 and ends in week 4.11	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR2AI010	Interiors Buildings Cities MSc2 Design Project	12
Responsible Instructor	Prof. D.J. Rosbottom	
Course Coordinator	Ir. S. Pietsch	
Instructor	Ir. M.E. Stuhlmacher	
Instructor	Ir. L.M.M. de Wit	
Instructor	M. Pimlott	
Instructor	D.H.G. Somers	
Instructor	Ir. S. Pietsch	
Instructor	Ir. J.S. Zeinstra	
Instructor	Ir. drs. E.P.N. Schreurs	
Instructor	S.S. Mandias	
Instructor	Prof. D.J. Rosbottom	
Contact Hours / Week	4 hours per week	
x/x/x/x		
Education Period	1	
Start Education	2	
Exam Period	3	
Course Language	English	
Summary	The Chair of Interiors Buildings Cities is concerned with making buildings, in places, for people. It conceives of the city, at each scale, as a work of architecture and, hence, the responsibility of the architect. This developing discussion of the chair is contextualised through an annual theme.	
Course Contents	The MSc2 course, Thinking through Making, encompasses design research investigations into thinking about, making and representing architecture, up to and including 1:1 scale.	
Study Goals	The MSc2 programme is a platform for special research and design projects proposed by members and associates of the Chair of Interiors Buildings Cities. At the heart of each of these projects, renewed every semester, is a research question or opportunity that yields possibilities for responses through design, and realised in tangible artefacts or models.	
Education Method	Upon completion of the Master 1, 2, 3 & 4 studio trajectory the student: - Has developed the skills in architectural design satisfying both aesthetic and technical / functional requirements. During the trajectory the complexity of the architectural design increases leading to a level fit for architectural practice and a training period for professional accreditation as architect. - During this trajectory skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology and human sciences. - Additionally, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and society's needs, including environmental aspects. - During Master 1, 2, 3 & 4 process skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing. - Together with the training with regard to aspects of building technology, during the Master 1, 2, 3 & 4 process skills are acquired to incorporate an understanding of the design process with regard to structural design, materialization of buildings and interiors, comfort and climate design.	
Literature and Study Materials	A specific description of the aims of the studios will be published in the Studio Manual, to be distributed at the beginning of the course.	
Assessment	The design studio features individual and group tutorials, and study specific to the design project as well as several dedicated thematic exercises, internal lectures and seminars that pertain to and inform the subject.	
Special Information	to be announced upon beginning of the course	
Period of Education	Assessment will focus on the research work undertaken by the individual student within the set theme; the specific research questions raised within; the specific design study that responds to those questions; the representation of that study in a physical artefact made by the student.	
Leerstoel	Products: models up to 1:1 scale; drawings / texts if applicable	
Course evaluation	The project will be assessed on: - the position that is formulated with regard to the brief and its context; the contribution to a collective discourse. - the appropriateness of the intervention with respect to the assignment; the feasibility and translateability of the idea into a physical manifestation. - aesthetic and technical / functional qualities; the elaboration throughout the respective scales - the quality of the presentation, the products and the argument. - the consistency and coherence and development of the students work during his / her process	
Special Information	The maximum marking period is 10 work days.	
Period of Education	The project starts in week 6 of the first quarter and extends towards the end of the semester. An introduction meeting will take place at the beginning of the semester.	
Leerstoel	Interiors Buildings Cities	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR2AP012	MSc2 Public Building Design Studio	12
Responsible Instructor	Dr.ir. M.G.H. Schoonderbeek	
Responsible Instructor	Dr.ir. S. Komossa	
Course Coordinator	S. Milani	
Course Coordinator	Ir. A.M.F. van Dam	
Instructor	Ir. F. Geerts	
Instructor	Dr.ir. S. Komossa	
Instructor	Ir. M.J. de Haas	
Instructor	Ir. A.M.F. van Dam	
Instructor	Dr.ir. M.G.H. Schoonderbeek	
Instructor	S. Lee	
Instructor	O.R.G. Rommens	
Instructor	A.S. Alkan	
Instructor	N.E.A.I. Deboutte	
Instructor	N. Marzot	
Instructor	S. Milani	
Contact Hours / Week x/x/x/x	8 hours per week	
Education Period	3	
	4	
Start Education	3	
Exam Period	none	
Course Language	English	
Course Contents	A-PB's MSc. 2 studio focuses on the conditions under which architecture operates through the limits of global urbanization and emerging contexts, as well as interdisciplinary processes that blur disciplinary bounds. These conditions allow for elaboration on formal expressions of the architects position in regard to both the disciplinary context and the breach of the disciplinary boundaries themselves.	
	Architecture distinguishes itself from mere building: it aspires to accomplish above and beyond meeting necessities and to provide something out of ordinary. We can surmise that architecture stipulates "exceptions" that set itself apart from everyday built environment. Therefore, architecture deals with specificity rather than generality.	
	A-PB's MSc. 2 design studio aims to initiate various design agendas from the specificities and/or exceptionalities of a particular material culture of a place arriving at a fully elaborated architectural design. The studios hinge around the specificities through which the students are confronted with singular aspects of different situations. By elaborating on the core issues and eventually defining their own design positions, students are expected to implement their research into design practice within the collective framework.	
	The sites and urban conditions that vary each year provide testing ground for diverse scales of inquiry, intervention, analysis and cultural perspective. Architectural means, instruments and techniques provide operative interface but also focus on a set of precisely delineated a priori as compositional constraints. Hence design research is exercised by and within the instruments, techniques and languages of architectural design.	
	The cities of the design groups will be announced shortly before the enrollment period starts. Each enrolled student will have an opportunity to choose the group of his/her preference.	
	Each city-group requires an excursion abroad. The excursion may cost around 400 or more per person for transport, lodging and other expenses depending on the location.	
Study Goals	Learn to design an architectural object that meets aesthetic as well as technical and functional requirements.	
	Understand the relationship between architectural work and its context, as well as the ways to relate architectural experimentation to culturally conducive urban environment.	
	Understand the role of architects and architecture in society.	
	Develop the ability to clarify a design project to others by means of images, spoken and written words.	
Education Method	Studio: 112 hours	
	Lectures: 8 hours	
	Independent study: 216 hours	
Assessment	Studio attendance & participation	
	Excursion participation	
	Mid-term (week 4.2) and final (week 4.10) reviews	
	(Specific weeks & dates of the presentation may be subject to change according to the official academic calendar of the university.)	
Special Information	The studio work may include and be supplemented by charrettes, informal/intermediate reviews, as well as by supplementary lectures and workshops.	
	Shortly prior to the beginning of the semester, each student will have an opportunity to choose and sign up for one of the city-groups. The student must select and express the first, second and third preferences. When the preferences are missing, the student will be randomly assigned to a city-group.	
	After the city-studio selection process, each student will also be given an opportunity to switch places 1:1, if necessary and at the discretion of the studio instructors.	
	During the first half of the semester, until the midterm review, the students will work in groups.	
	The maximum marking period is 10 work days.	
	For more information, contact: pb-edu-bk@tudelft.nl	

Period of Education	Semester
----------------------------	----------

AR2AT020	Agential Materialism Architecture Theory Design Studio	12
Responsible Instructor	Dr.ir. H. Sohn	
Course Coordinator	Dr.ir. H. Sohn	
Instructor	Dr.ir. A. Radman	
Instructor	Dr.ir. H. Sohn	
Instructor	Dr.ir. S. Kousoulas	
Instructor	Dr. A. Altes Arlandis	
Contact Hours / Week x/x/x/x	8 hours per week	
Education Period	4	
Start Education	4	
Exam Period	none	
Course Language	English	
Required for	This course is an elective choice for the required MSc2 studio credits.	
Expected prior knowledge	Students with interest and motivation in theoretical and conceptual aspects of architecture design are encouraged to join this studio.	
Course Contents	<p>The Architecture Theory Studio Agential Materialism is a design studio with a strong theory component that engages architecture as a material-discursive practice, in which the conceptual and the non-conceptual (theory & design) are regarded as fully agential and relational: they happen and emerge in the same space-time-matter continuum. In our studio we will investigate conceptual terms such as matter, objects, things, bodies, as well as the notions of process, change, emergence and agency, among many others, as a means to investigate their application and potential for architecture design. Our studio explores the power of concepts as methods for practice, and experiments with the affective capacities of matter as fundamental in the genesis of form.</p> <p>The thematic and design assignments of our studio vary, but always depart from actions rather than programmatic or functional prerequisites, foregrounding the potentials of architectural, material and spatial agencies involved in the design process.</p> <p>This studio is highly experimental and hands-on in regards to the material aspects of theory as practice. It welcomes students who are inclined to explore unfamiliar (yet exciting) themes, raise interesting questions and problems, and experiment with ideas and matter to make their design practice and skills more meaningful.</p>	
Study Goals	<p>After completion of this design studio the participants will:</p> <ul style="list-style-type: none"> have a solid base of knowledge on recent literature in the humanities and the social sciences and their relation to architecture practice and theorization have acquired solid knowledge-base to discern theoretical, analytical and synthetic methodologies and their application in the design process. have developed a deeper understanding of the relationships, potentials and interactions of different agents involved in any design process. have developed experimental and innovative design skills through conceptual, abstract and theoretical thinking. have experimented with different media and tools as aids for the communication of architectural proposals and ideas. have acquired research skills, and will be able to apply these in reflections and theoretical argumentation of their design projects. will have acquired understanding of the societal, cultural, technological and ethical dimensions of a design process that includes human and non-human actors alike. 	
Education Method	<ul style="list-style-type: none"> monthly lectures and weekly theory seminars discussion on related themes weekly design studio reviews presentations (interval & final) with visiting critics 	
Course Relations	<p>This course is compatible with the Architecture Theory Thesis course (AR2AT030). We encourage students to follow both courses in the same semester.</p> <p>Students wishing to participate in both courses are advised to register in the enrolment period for the Spring semester.</p>	
Literature and Study Materials	<p>Study material, reading lists and other relevant course-related literature will be made available to the students prior to the first meeting.</p>	
Prerequisites	<p>Students wishing to participate in this course are strongly recommended to have completed the necessary credits for MSc1.</p>	
Assessment	<ul style="list-style-type: none"> methodology development architectural design proposal theoretical reflection 	
Special Information	<p>This course is highly compatible with the Architecture Theory Thesis (AR2AT030). Students wishing to follow this studio are advised to enrol in both courses. Please note that the courses have different education periods (Q1/3 & Q4 respectively)! For questions please contact our student assistants or the academic coordinator at AT-MSc-BK@tudelft.nl</p>	
Elective	Yes	
Tags	<ul style="list-style-type: none"> Abstract Adventurous Design Group work Intensive Process Research Methods 	
Period of Education	This studio is offered only in Q4 (Spring term) of each academic year.	
Leerstoel	Architecture Theory Chair	
Maximum aantal deelnemers	20 students	

AR2CP010	MSc2 Complex Projects Design and Research Studio	12
Responsible Instructor	Prof.ir. C.H.C.F. Kaan	
Course Coordinator	M. Triggianese	
Contact Hours / Week x/x/x/x	80 hours per Quarter	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	BSc and MSc 1 completed	
Course Contents	<p>AMBITION In Master 2 we focus on Cities. This research and design studio promotes broad speculation, independent thinking, collective work with the aim of positioning architecture into a broader social, cultural, political, and economic context. Through the various themes, students are exposed to the versatile layers of the city, while simultaneously expected to engage their observations with daily studio work. Understanding the hard and soft layers, that actually define the values of a contemporary city, can lead towards ambitions to follow. After forensic analysis of the layers, a new framework will be developed for the project area that will be extracted and developed in detail.</p> <p>EVALUATION Evaluations will be based on the research approach, dedication, commitment, effort and improvement of the team in the investigation of the City (and the project area). Concrete aspects for evaluation are: research work, clarity of the problem statements, originality of the final presentation. Please contact the course coordinator for the specific programme / cities of the semester.</p> <p>Study Goals The student: Has developed the skills in architectural design satisfying both aesthetic and technical/functional requirements. During the trajectory the complexity of the architectural design increases leading to a level fit for architectural practice. During this trajectory, skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology and human sciences. Additionally, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and societies needs, including environmental aspects. During MSc1, 2, 3 & 4 process skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing.</p> <p>Education Method Besides studio program students are expected to fully engage with events and people which the sites have to offer. Workshops, lectures, tours and travels are included in the studio programme.</p> <p>Assessment Midterm presentation including research, argument and concept. Final presentation with posters and research booklet. Additional visualisation tools can be used, such as video, reportage, models.</p> <p>Special Information As part of the Complex Projects objective, the search for definition of city guides the Design and Research studio, 'IN Cities' studio in its most direct way. Please contact the studio coordinator to know this year's case studies.</p> <p>Period of Education Semester</p> <p>Leerstoel Complex Projects, department of Architecture</p> <p>Minimum aantal deelnemers 12</p> <p>Maximum aantal deelnemers 16</p> <p>Course evaluation For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/</p>	

AR2FM010	The Delta Shelter	12
Responsible Instructor	P.A. Koorstra	
Course Coordinator	P.A. Koorstra	
Education Period	3 4	
Start Education	3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	BSc and Master 1	
Course Contents	<p>The assignment is to design a small project in a Delta environment; a dynamic and natural surrounding on the border of water and land.</p> <p>The infinity of the location and the constant changing conditions invite to research the meaning of boundaries and the integration of the landscape in the design. The experience of the specific and poetic qualities of this environment will be one of the explicit themes in this course; the contradiction between the human scale and the unrestricted landscape, the influence of wind and tide, the flora and fauna and the position of human within this often vulnerable ambience.</p> <p>The role, impact and contribution of architecture in such places is part of the research in this assignment. More specific the typology and manifestation of the architecture will be discussed and developed on the basis of the design proposals. The ethics and aesthetics of architecture will be discussed regarding questions as; What are the necessary conditions for architecture to give a satisfying contribution to this environment? Is it inevitable that architecture is a disturbing factor, can it only be of temporary presence, or can architecture contribute to the appreciation and preservation of these kind of environments?</p> <p>The project will be developed by using physical scale models, hand sketches and text during all the phases of the design process; the analysis, design and presentation. The aim of this method is to stimulate the creative process by using the physical model and drawing as a feedback and inspiration tool to develop the concept into a design.</p>	
Study Goals	<p>-The student will gain competence is conducting design research and research-by-design by using physical models and hand drawings as a tool throughout the design process.</p> <p>-The student will gain insight in collaborating and communicating by making active use of various scale models to present the design in all its aspects; the architectural composition, materialisation and integration of construction.</p> <p>-The student will be able to communicate his contemplations and reflect on the role and position of the architect in this assignment.</p>	
Education Method	lectures and design studio format. Weekly assistances in groups as well on individual basis.	
Assessment	<p>Assesment on the basis of process, analysis, documentation and (re)presentation of the end result. A brief reflective statement of max 450 words is part of the assesment.</p> <p>Presentation will contain a variety of physical models, drawings, photographs and text.</p> <p>The products should give a clear insight in spatial design, the construction and the relation and meaning of the design towards its environment.</p> <p>The student has achieved a sufficient result on scale 1 to 10 with 6, has the possibility to take a resit with a mark between 5 and 6 and failed with 4,9 or minor. Resit has to be completed within 2 weeks after completion the studio.</p>	
Special Information	coordinator	
Remarks	A site visits can be part of the studio	
Period of Education	Q3 & Q4, 15 weeks, starting in week 3.6	
Leerstoel	Form & Modelling Studies, Architecture	
Minimum aantal deelnemers	12	
Maximum aantal deelnemers	32	

AR2MET010	Transdisciplinary Encounters	12
Responsible Instructor	Dr.ir. P.J. Teerds	
Responsible Instructor	Dr.ir. K.M. Havik	
Course Coordinator	Dr.ir. P.J. Teerds	
Instructor	Dr.ir. P.J. Teerds	
Contact Hours / Week x/x/x/x	4 hours per week	
Education Period	4	
Start Education	4	
Exam Period	none	
Course Language	English	
Course Contents	<p>The field of architecture holds a broad set of research and design methods, but also has the capacity to productively engage with approaches and perspectives from other fields that deal with the built environment such as literature, arts, cinema, philosophy, psychology, and social sciences. In contemporary architectural practice several architects (Steven Holl, Peter Zumthor, Bernard Tschumi, Rem Koolhaas) have used these productive encounters and exchanges with other fields to reorient architectural analysis and design.</p>	
	<p>The Msc2 studio Transdisciplinary Encounters offers a site of exploration for students interested to pursue the possibilities of the encounter between the architectural practice and other disciplines. These may be artistic disciplines, providing instruments such as literary description, narrative, montage and scenario writing, or disciplines from social sciences, providing fieldwork techniques related to social spatial practices and user behaviour. The studio encourages students to develop experimental methods of analysis and design in order to obtain new design solutions.</p>	
	<p>This studio is dedicated to the exploration of a broader scope upon the built environment by using encounters and exchanges with methods from other disciplines. It focuses on the implementation of investigative and creative methods from these fields, particularly focussing on site research and how such new methods and ways of looking can be implemented within the field of architecture.</p>	
	<p>The studio exercise will depart from specific and extensive fieldwork methods, and aims to carry out a site-specific analysis with experimental techniques. Results from the site analysis will be brought to the field of architecture step by step, in order to lead to architectural or urban strategies of intervention.</p>	
Study Goals	<p>the student:</p> <ul style="list-style-type: none"> -becomes acquainted with approaches from other disciplines such as literary, artistic and cinematographic practices, or social science disciplines -learns to conduct field work on site -learns to use and develop experimental methods of analysis and design -implements investigative and creative methods from these fields to conduct site research and develop urban or architectural strategies for a given site 	
Education Method	<p>Combined seminar and studio; in-situ fieldwork. Through experimental in-situ fieldwork the studio will develop tools in order to understand and address the issue of the public realm of a specific city, area or neighbourhood. To do so, during the studio students will adopt and adapt techniques from different other scientific or artistic fields that adjust the profession of architecture, like social geography, anthropology, sociology, and philosophy or sculpture, literature, and cinema. Through these investigations, detailed quantitative and qualitative mappings can be drawn, based on statistical analyses, socio-historical research and in-depth interviews. Depending on the specific approach of the studio, these techniques can be combined with particular drawing techniques such as the section, the softmap and the collage. The site research will thus result in evocative and speculative drawings, models, texts, and films. In a concise presentation the students are requested to evoke their projects and visions on a larger urban scale, as well as to propose site-specific interventions.</p>	
Assessment	<p>For this elective course, the process and the development of appropriate tools for fieldwork and the students reflection upon these methods and the results of the fieldwork will be assessed through mid-term presentations and a final presentation. Criteria are focussing on the consistency of the project: the relation between methods, research findings and urban or architectural strategy.</p> <p>The students are expected to bring their work together in a collective book, thereby showing the broad perspective of site investigations and developed strategies. For the final presentation, representatives from the given site and disciplinary field will be invited as guest critics.</p>	
Elective	Yes	
Tags	Research Methods	
Period of Education	Quarter	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

MSc1 Design Projects

AR1AD011	Dwelling Design Studio: 'The Netherlands'	12
Responsible Instructor	Ir. P.S. van der Putt	
Course Coordinator	Ir. P.S. van der Putt	
Instructor	Ir. P.A.M. Kuitenbrouwer	
Instructor	Ir. O. Klijn	
Contact Hours / Week x/x/x/x	112 hours per semester	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Course Contents	<p>Students of the Dutch Housing Studio design a residential complex in an urban environment in the Netherlands. The design is accompanied/preceded by research into the design assignment and the specific topics of the studio.</p> <p>Each semester the design assignment may be different from the one before. Oftentimes there are two studio options (however, the chair reserves the right to cancel an option if there is a lack of interest from students).</p> <p>Though topics may vary from one semester to the next, at the core of each studio lies the design of dwellings and of the dwelling environment, complemented by research and literature study. Design work is done individually, while some of the research may be performed in teams.</p> <p>Topics of the Studio may include (but are not limited to) the inclusive city, work-live combinations, projects for specific target groups, and small scale interventions. More specific information about the design assignment of the upcoming semester can be found on the website and at the Master-information meetings that take place twice a year.</p> <p>All MSc 1 Dwelling students will take part in a site excursion as well as a workshop or master class revolving around the theme of the studio. The studio is not available for MSc 2 students. MSc 1 students are required to also enrol in Architectural Studies (AR1AD030) and Architectural Reflections (AR1AD040).</p>	
Study Goals	<p>Upon completion of the course the student is able to</p> <ul style="list-style-type: none"> design a sketch version of an urban plan for a given area in terms of massing, program and zoning. design a complex residential building with additional functions, subscribing to the functional demands of the brief and the spatial, structural, technical and aesthetic requirements of architecture. design several dwellings that suit functional demands of their respective target groups. perform research of precedent projects and to demonstrate their impact on his/her own design. develop and compare design alternatives. critically reflect on the assumptions and starting points of the brief. convey his/her design ideas by way of (oral) presentations. critically reflect on his/her own design process. 	
Education Method	Studio: 70 hours Self-study: 266 hours	
Assessment	<p>Presentations will be held throughout the semester; assessment by way of final presentations at the end of the studio. Exact requirements to be announced at the start of the studio.</p> <p>The final grade (F) for AR1AD011 will be a weighted average of the Architecture grade (A) and the Building Technology grade (BT), such that $0,8 \times A + 0,2 \times BT = F$. Both A and BT will be rounded to half or whole points. The final grade will be rounded to one decimal place.</p>	
Special Information	The maximum marking period is 10 working days.	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1AE010	EXTREME architecture	12
Responsible Instructor	Prof.dr.ing. U. Knaack	
Course Coordinator	Ir. R. Schroën	
Contact Hours / Week x/x/x/x	12 hours per week	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Course Contents	<p>The project is about building in a extreme situation, in respect to climate, location and function. Essence is the interaction between the extreme circumstances, the technical solutions, and the architecture. Extreme circumstances do request technical solutions which will be the starting point for the design development. The designer has to direct the 'engineer questions and answers', towards the articulation of the form which is based on integration of aesthetic and technology.</p>	
Study Goals	<p>For this project we will be focussing on the Maldives: a group of atolls which is expected to disappear below the rising sea level. How can we use architecture and engineering to preserve this community?</p>	
	<p>"Die Architektur des 21 Jahrhunderts hat ihre Unschuld verloren, Gebaude müssen etwas leisten" Stefan Behnisch.</p>	
	<p>In the end the student is able to understand technical solutions, to reflect on them, to applicate them and to transform them. And the student is able to design a coherent design result.</p>	
	<p>Upon completion of the MSc1, 2, 3 & 4 studio trajectory the student:</p>	
	<p>Has developed the skills in architectural design satisfying both aesthetic and technical/functional requirements. During the trajectory the complexity of the architectural design increases leading to a level fit for architectural practise.</p>	
	<p>During this trajectory skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology and human sciences.</p>	
	<p>Additionally, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and societys needs, including environmental aspects.</p>	
	<p>During MSc1, 2, 3 & 4 process skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing.</p>	
	<p>Together with the training with regard to aspects of building technology, during the MSc1, 2, 3 & 4 process skills are acquired to incorporate an understanding of the design process with regard to structural design, materialisation of buildings, comfort and climate control.</p>	
	<p>In the end the student is able to design a healthy coherent building in extreme conditions with a focus on technical solutions: the student is able to apply, reflect and transform principles concerning climate, construction and structure.</p>	
Education Method	Design project	
Assessment	The design result including the aspects structure, climate and envelope.	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1AI010	Interiors Buildings Cities MSc 1 Design Project	12
Responsible Instructor	Prof. D.J. Rosbottom	
Course Coordinator	Ir. S. Pietsch	
Instructor	Ir. M.E. Stuhlmacher	
Instructor	Ir. L.M.M. de Wit	
Instructor	M. Pimlott	
Instructor	D.H.G. Somers	
Instructor	Ir. S. Pietsch	
Instructor	Ir. J.S. Zeinstra	
Instructor	Ir. drs. E.P.N. Schreurs	
Instructor	S.S. Mandias	
Instructor	Prof. D.J. Rosbottom	
Contact Hours / Week	4 hours per week	
x/x/x/x		
Education Period	1	
Start Education	2	
Exam Period	3	
Course Language	English	
Summary	<p>The Chair of Interiors Buildings Cities is concerned with making buildings, in places, for people. It conceives of the city, at each scale, as a work of architecture and, hence, the responsibility of the architect. This developing discussion of the chair is contextualised through an annual theme.</p>	
Course Contents	<p>The MSc1 course, The House in the City, considers detailed material and spatial programmes for proto-typical city buildings with the intention of nurturing architectural sensibilities in students that are attuned to context, users, relations, appearances, spaces and interiors, materiality, and construction.</p>	
Study Goals	<p>MSc 1 is structured as a series of parallel studios, run by a dynamic mix of practitioners and academics and collectively concerned with interpretations of a common theme, the House in the City. Understood ambiguously, as in the German Haus, the concerns of the course are not the representative monuments of culture, nor the private houses of individuals. Instead, projects explore those buildings that stand between, housing our collective urban life and oscillating, in our consciousness, between foreground and background. Carefully wrought, spatially rich, generous and adaptable, such buildings have the capacity to evolve over time and to engage in a territory that might encompass both extended domestic and intimate public life. As discrete elements, subservient to a larger whole, they play small but significant roles in structuring urban fabric and defining urban space, simultaneously taking pleasure in the heterogeneity of the contemporary city and bringing it into order.</p> <p>Through individual projects, each studio addresses how such city houses might be made, experienced and inhabited, in time and space and in response to the particularities of place. Through careful drawing and iterative making, their individual characters emerge in a welcoming interior, through a moment of figuration or in the refinement of a façade.</p> <p>The contents of the individual studios will be published at the beginning of the semester. Students are asked to indicate their preference for one of them. Usually the studios include a 2-3-day excursion to a location relevant to the project. The corresponding information will also be communicated at the start of the semester.</p> <p>The MSc1 Design Project (Ar1Ai010) is conceived in conjunction with the Fundamentals course (AR1Ai040). Students are required to enrol to both courses.</p>	
Education Method	<p>Upon completion of the Master 1, 2, 3 & 4 studio trajectory the student:</p> <ul style="list-style-type: none"> - Has developed the skills in architectural design satisfying both aesthetic and technical / functional requirements. During the trajectory the complexity of the architectural design increases leading to a level fit for architectural practice and a training period for professional accreditation as architect. - During this trajectory skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology and human sciences. - Additionally, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and society's needs, including environmental aspects. - During Master 1, 2, 3 & 4 process skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing. - Together with the training with regard to aspects of building technology, during the Master 1, 2, 3 & 4 process skills are acquired to incorporate an understanding of the design process with regard to structural design, materialisation of buildings and interiors, comfort and climate design. <p>A specific description of the aims of the studios will be published in the Studio Manual, to be distributed at the beginning of the course.</p>	
Literature and Study Materials	<p>The design studio features individual and group tutorials, and study specific to the design project as well as several dedicated thematic exercises, internal lectures and seminars that pertain to and inform the subject.</p> <p>A characteristic working method of the Chair is the building of physical models of varying scales in which ideas about the design project are tested and materialized.</p> <p>To be announced upon beginning of the course</p>	
Assessment	<p>The design studio concerns the development of an architectural project on all scale levels, from its urban setting to its materiality and elaboration of its details. The project will be assessed during an intermediate, pre-final and final presentation on its:</p> <ul style="list-style-type: none"> - the position that is formulated with regard to the brief and its context - the appropriateness of the intervention with respect to the assignment - aesthetic and technical / functional qualities - the elaboration throughout the respective scales - the integration of the disciplines included - the quality of the presentation, the products and the argument. - the consistency and coherence and development of the students work during his / her process <p>The products to be assessed include the design proposal represented through drawings, models and text; the project journal and</p>	

	the portfolio.
	The final grade consists of partial grade of 80% for Architecture and 20% for Building Technology. Both grades need to be sufficient for the student to pass.
Special Information	The maximum marking period is 10 work days.
Period of Education	Semester
Leerstoel	Interiors Buildings Cities
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/

AR1AR011	Heritage and Architecture Design Studio: Architectonic Design	12
Responsible Instructor	Ir. W. Willers	
Course Coordinator	Ir. W. Willers	
Instructor	Ir. A.W. Hermkens	
Instructor	Ir. W. Willers	
Contact Hours / Week x/x/x/x	8 hours per week	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Summary	The design assignment focuses on the intervention at existing buildings or ensembles to meet requirements of contemporary and future use. The design process will be guided by exploring design possibilities and architectural consequences of the design.	
Course Contents	<p>The object of this Heritage & Architecture studio is the architectural design for the re-use of a building or building-ensemble to meet requirements of contemporary and future use.</p> <p>A transformation framework will be made by the interpretation of the analysis of the urban context, the building and the program requirements. Various aspects of designing in existing built structures are investigated by studying reference projects and literature.</p> <p>By working on different scale-levels a coherent design will be made. At atelier meetings different aspects like relation existing new, urban context, functionality, spatial quality, technical aspects, material aspects will be discussed.</p> <p>Different presentations will help students to develop their presentation skills.</p> <p>The current debate of transformation and intervention with topics like authenticity, sustainability, layers of history, and so on is very present during this course on every single scale.</p>	
Study Goals	<p>Upon completion of the Master 1 design project the student is able to:</p> <ul style="list-style-type: none"> - interpret cultural values on urban, architectural and technical scale and create a transformation framework, - translate a transformation framework to a design strategy, and a design strategy to an elaborated design, - incorporate aspects in the field of architectural history and architectural theory, art, society's needs, human sciences and environmental aspects. - make a design satisfying functional, aesthetic and technical requirements, - position the project in the discourse, - explain the architectural design during a presentation by combining oral, written and graphic media (e.g., drawings, models) 	
Education Method	Design coaching, 4-8 hours counseling per studio during educational weeks, total 112 hours. Self study: total 224 hours.	
Literature and Study Materials	Will be delivered by the tutor and/or coordinator, or via Brightspace	
Assessment	Research booklet Presentation at the end of the semester	
Special Information	Presence at the first meeting is mandatory. For the assessment the presence during the course and the overall design process will be taken in consideration.	
Period of Education	Semester	
Leerstoel	Heritage & Design	
Minimum aantal deelnemers	12, minimum group 8 students	
Maximum aantal deelnemers	48	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1CP010	Complex Projects Design Studio	12
Responsible Instructor	Prof.ir. C.H.C.F. Kaan	
Course Coordinator	M. Triggianese	
Instructor	Ir. A.T. Richters	
Instructor	S. Filippas	
Contact Hours / Week x/x/x/x	80 hours per semester	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	BSc degree Architecture	
Course Contents	<p>As introduction to Complex Projects, this design studio, 'Landmark', has the ambition to make students familiar with the multiple aspects that define a building. Landmark assignment aims for developing skills in the scientific method of analysis and synthesis. Via anatomical dissection, students learn to identify soft and hard aspects of a building while placing them in the bigger frame of the total composition of the building and its context.</p> <p>The studio promotes broad speculation, independent thinking, collective work with the aim of positioning architecture into a broader social, cultural, political, and economic context. Students will perform a thorough urban research in order to understand the areas history and context, and to identify the Landmarks that could become catalyst for intervention. The research zooms in from the large scale of the city itself, to the medium scale the site, to the small scale of the building. The resulting data has to be organized into a comprehensive research book. This serves as basis for forming a narrative which is leading for the individual redesigns of the Landmark.</p> <p>The seminar AR1CP040 (Anatomy) is fully integrated with the studio. An educational trip / excursion with on-site workshops is part of the studio program. Please contact the studio coordinator to know this year's case studies.</p>	
Study Goals	<p>Upon completion of the MSc1, 2, 3 & 4 studio trajectory the student:</p> <ul style="list-style-type: none"> Has developed the skills in architectural design satisfying both aesthetic and technical/functional requirements. During the trajectory the complexity of the architectural design increases leading to a level fit for architectural practice. During this trajectory, skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology and human sciences. Additionally, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and society's needs, including environmental aspects. During MSc1, 2, 3 & 4 process skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing. Together with the training with regard to aspects of building technology, during the MSc1, 2, 3 & 4 process skills are acquired to incorporate an understanding of the design process with regard to structural design, materialization of buildings, comfort and climate control. 	
Education Method	Tutorials in studio. Research will be done in thematic groups, design is either individual or in groups of max 2 students.	
Reader	Reader (syllabus) with the studio programme, the basic literature and the weekly schedule will be provided prior to start studio	
Assessment	<p>Monthly pin ups showing research, argument and concept.</p> <p>Trial presentation two weeks prior to the final presentation. The overall work has to be finished by then. Final presentation composed of research books (with critical investigations and site-analysis) and design studio book (with design projects) and digital presentation.</p>	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Semester	
Leerstoel	Complex Projects, department of Architecture	
Minimum aantal deelnemers	16	
Maximum aantal deelnemers	32	
Course evaluation	<p>Evaluations will be based on the overall performance within the studio. The students performance will be determined by the quality of his/her work, commitment, teamwork, effort and improvement over the entire course of the semester. Concrete aspects for evaluation are; research work, argument formulation, translation argument into concept, urban plan, architectural design, presentation.</p> <p>For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/</p>	

AR1MET010	Ways of Doing	12
Responsible Instructor	Dr.ir. K.M. Havik	
Course Coordinator	Dr.ir. P.J. Teerds	
Instructor	Dr.ir. P.J. Teerds	
Instructor	Dr.ir. W.W.L.M. Wilms Floet	
Contact Hours / Week x/x/x/x	8 hours per week	
Education Period	1 2	
Start Education	1	
Exam Period	none	
Course Language	English	
Summary	<p>The studio Ways of Doing aims to develop and assess distinct methods that allow for innovative way of analysis, architectural design, and spatial intervention in challenging (post-)industrial regions in the Low Countries. Every semester a different site to work on is chosen. These (post-)industrial areas often are dominated by characteristic constructions and buildings: huge installations, factories, warehouses and offices, some still in use, others empty. Particularly in the post-industrial sites, often social questions and signs of foreclosure dominate both the political and the physical landscape. Cities make redevelopment plans, although often it is quite difficult to find the right program and approach in order to revitalise such areas as the local economy.</p> <p>The aim of education in the Methods & Analysis MSc1 studio is to merge analysis and design extensively, in order to face difficult architectural, spatial, technological, social and political questions that dominate these (post-)industrial landscapes.</p>	
Course Contents	<p>From Otto Wagner to Aldo Rossi and Robert Venturi, architects have always developed new approaches and tools to react to changing urban conditions. The studio Ways of Doing wants to position itself within this architectural tradition and asks: Which toolbox can we cultivate to confront new urban ecologies like (post-)industrial landscapes? Through particular assignments, it aims to develop and assess distinct methods that allow for innovative way of analysis, architectural design, and spatial intervention in the challenging reality of (post-)industrial landscapes in various cities in The Netherlands and Belgium. Each semester another site is chosen to be investigated. These (post-)industrial areas often are dominated by characteristic constructions and buildings: huge installations, factories, warehouses and offices, some still in use, others empty. Particularly in the post-industrial sites, often social questions and signs of foreclosure dominate both the political and the physical landscape. Cities make redevelopment plans, although often it is quite difficult to find the right program and approach in order to revitalise such areas as the local economy. Students investigate the spatial, social and political situation by studying particular themes, like the atmosphere, the infrastructure, public space, as well as by using specific methods of analysis and design, like soft-mapping and drawing sections, or developing narratives or spatial poems. Analysis, in this particular perspective, is extensively part of the design-approach that the student will develop during the studio. Part of this approach also is the choice of location, program and aim of a spatial intervention in the area of study.</p>	
Study Goals	<p>Upon completion of the Master 1, 2, 3 & 4 studio trajectory the student:</p> <ul style="list-style-type: none"> - Has developed the skills in architectural design satisfying both aesthetic and technical / functional requirements. During the trajectory the complexity of the architectural design increases leading to a level fit for architectural practise. - During this trajectory skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology and human sciences. - Additionally, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and societies needs, including environmental aspects. This includes moral decision and argumentation skills regarding architectural ethics, especially when addressing social, political, environmental and technological issues. - During Master 1, 2, 3 & 4 process skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing. - Together with the training with regard to aspects of building technology, during the Master 1, 2, 3 & 4 process skills are acquired to incorporate an understanding of the design process with regard to structural design, materialisation of buildings, comfort and climate control. 	
Education Method	<p>The msc1 studio Ways of Doing takes up the task to investigate new tools and methods to address the challenging paradox of historical presence on the one hand, and large new developments on the other. The studio does so by constantly shifting to different methods, in order to look at the site and the research question from various perspectives, which can vary from strict architectural towards technological, and from spatial to political perspectives.</p> <p>During the course, different methods will be applied: from fieldwork to investigations by means of narrative or sections; from material explorations to the development of sequences of use; by focussing on building-technological aspects or on atmospheric aspects of spaces; from focusing on basic architectural elements such as floor, wall and roof, to articulating structural aspects like repetition and hierarchy.</p> <p>Students will start to work in small groups on distinct research themes the result of these investigation is understood as the share knowledge base that is developed in the studio. Based on these insights, the students either continue to work in groups or work individually on the proposal of a spatial intervention in a location of choice.</p>	
Course Relations	<p>This design studio is accompanied by two theoretical seminars, Architectural Tools (AR1MET030) and The Roles of the Architect (AR1MET040) that respectively investigate the instruments used by architects to develop their plans and ideas, and how these affect the very outcome of the design-process, and explore the various roles architects can take within contemporary practices and society.</p>	
Assessment	<p>The course is assessed through a mid-term review and a final presentation of the project. However, as for this course the process is as important as the final design, the students need to present not only the project, but also substantial intermediate findings. The tutors will assess, during the mid-term review and the final presentation the way students understand and apply different methods offered. Particular attention will be given to the question how the student succeeds in using methods as offered in the studio, and how the student is able to formulate particular design hypothesis based on these exercises. The consistency of the project on a methodological, architectural and technical level is crucial for the final assessment. For the mid-term review as well as for the final presentation, external critics will be invited.</p>	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1TWF010	The Why Factory Design Studio: Design lab I	12
Responsible Instructor	Prof.ir. W.G.M. Maas	
Responsible Instructor	F.M. Madrazo Salazar	
Course Coordinator	J. Arpa Fernandez	
Instructor	F.M. Madrazo Salazar	
Instructor	Prof.ir. W.G.M. Maas	
Co-responsible for assignments	S. Gargaretas	
Contact Hours / Week x/x/x/x	6 hours per week	
Education Period	1 2	
Start Education	1	
Exam Period	none	
Course Language	English	
Course Contents	<p>This course is a MSc1 studio, and is organized as a think tank. Studios at The Why Factory are content-driven design and research studios with a practical and theoretical scope. MSc1 studios are research labs and platforms that aim to analyse, theorize and construct future cities. They conduct a variety of investigations within the given world, and produce future scenarios beyond it: from universal to specific and global to local.</p> <p>MSc1 studios start with a specific brief and a statement on the future of urban life. Based on the brief, future scenarios will be developed leading to visionary, city-related designs.</p> <p>Students develop their specific approach to the brief and define the necessary scientific research. Calculations, simulations or modelling to support the studio work are elaborated in a parallel seminar: the Future Models seminar.</p> <p>The results of the research lead to a design project with consequent logic, convincing argumentation and illustrative and fantastic visuals.</p>	
Study Goals	<p>Upon completion of the Master 1, 2, 3 & 4 studio trajectory, the student:</p> <ul style="list-style-type: none"> - Has developed the necessary skills in architectural design that satisfy programmatic, aesthetic and technical requirements. During the Masters trajectory, the complexity of the architectural design increases, leading to the level required for professional practice. - During this period, skills are acquired to increasingly incorporate an understanding of design processes, architectural history and theory, art, technology and human sciences. - Additionally, skills are acquired to incorporate into design an understanding of the relation between buildings, spaces and society's needs, including environmental aspects. - During Master 1, 2, 3 & 4, skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing. - Together with the building technology training, during Master 1, 2, 3 & 4 skills are acquired to incorporate an understanding of the design process with regard to structural design, materialisation of buildings, comfort and climate control. 	
Education Method	Atelier: 150 hours Self study: 270 hours	
Course Relations	<p>MSc1 studios are linked to two other courses of The Why Factory: the Actualities Workshop (AR1TWF020) and the Future Models seminar (AR1TWF030).</p> <p>Students who join the MSc1 design studio AR1TWF010 as core course must join AR1TWF020 and AR1TWF030 as well.</p> <p>Students who join the design studio AR1TWF010 as an optional MSc2 studio are not obliged to join AR1TWF020 and AR1TWF030. However, we advise students to join the Future Models seminar AR1TWF030, as it may be helpful for the content of the design studio.</p>	
Assessment	Presentation	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

MSc 3 CP

AR3A160	Lecture Series Research Methods	6
Responsible Instructor	Dr.ir. P.J. Teerds	
Responsible Instructor	Dr.ir. K.M. Havik	
Course Coordinator	Dr.ir. P.J. Teerds	
Instructor	Dipl.ing. R.A. Gorny	
Instructor	M.F. Berkers	
Contact Hours / Week	28 hours per quarter	
x/x/x/x		
Education Period	1 3	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	General Master 2 level of knowledge.	
Course Contents	The lecture series will allow MSc 3 students from all the departments and chairs of our Faculty to reflect on and explore a series of methodological approaches, which should strengthen their architectural positions in the graduation studio, towards the conclusion of their formative process and the consequent obtainment of the corresponding degree.	
	Students involved in this course are expected to operate at a final year Masters level, meaning they are responsible for performing critically within the series of concepts presented in the course; as well as individually fulfilling course requirements such as being acknowledged with the basics of scientific writing, formulating hypotheses and investigating at a level equivalent to their standing within the curricular track.	
	This lecture series will address scientific integrity to make sure that architecture students develop the necessary skills for integer research approaches while being aware of the societal, political, physical and environmental impacts their research and design work has.	
Study Goals	The lecture series aims to:	
	- Take advantage of the magnitude and diversity of the series. The line-up of lecturers, paired to the differences among the academic tracks followed by students from several chairs and departments, should substantially enhance each discussion, and promote creative approaches to each of the topics discussed.	
	- Endow the students with clear knowledge of the heuristic nature of their work. The central thesis of the course is that all architectural activity is an exploration within identifiable disciplinary fields of experimentation, based on equally identifiable epistememes. Awareness of that explorative/cognitive capacity of architecture we sustain is a crucial element in the formation of an architect.	
	- Present the students with a selection of relevant and progressive architectural methodologies and analytical strategies that are currently being used and discussed within the A+BE academic community and in other outstanding educational institutions.	
	- Invite students to become engaged in these discussions actively, in order for their graduation processes to constitute real contributions to the professional debate that feeds our Faculty. It is expected that, with the information provided in this course, each graduation process aims to produce additional architectural knowledge in the face of established and ongoing research programs.	
	- Focus on moral sensibility, analysis, creativity, judgment, and skills regarding architectural ethics when developing specific expertise.	
Education Method	The course comprises two, parallel activities: A series of lectures and the preparation of a position paper.	
	The lecture series is made up of seven sessions. Six have defined topics, the first is introductory.	
	Each lecture session includes a 30+ min. presentation by a lecturer, a 30+ min presentation by a group of students, and a 30+ minute series of Q&A, presented to both lecturer and students.	
	Each guest lecturer is responsible for submitting on the fore a reference text for students to prepare the session, and a paper of her authorship that exposes, summarizes or complements her presentation. Both documents will be made available to the whole group of students with sufficient anticipation.	
	A group of students will be responsible for preparing each lecture. These groups will be formed during the course intro, and will divide themselves into a subgroup in charge of presenting the topic, and other subgroups in charge of preparing a series of debate topics and questions, for the closing discussion.	
	The whole group of students in charge of preparing each session will participate in a workshop, in which they will be guided in the development of their presentation and the construction of different positions within the chosen topic, looking forward to the debate. These workshops will take place on Monday mornings, and will be tutored by the coordinators of the lecture series and/or staff from the chair of Methods and Analysis.	
	Before entering each lecture session, the group of presenting/debating students will hand in a paper of their authorship (2000 words, aprox.) that exposes, summarizes or complements their presentation, the images that accompany their talk, the questions and debate topics developed to feed the debate, and any other addenda they consider necessary to support their understanding of the topic.	
Literature and Study Materials	A reader will be distributed via Blackboard/Brightspace	
Assessment	Each student is responsible to elaborate on her own reflections regarding the course, the debates, the literature that will be provided and suggested, and her own graduation process, by producing an individual position paper (aprox. 2000 2500 words), following scientific standards of writing and structuring her topics (acknowledging a state of the art for a particular discussion, for example) towards the construction of a methodological apparatus in affinity with her own intentions and inclinations.	
	Upon request, specific tutoring/workshops for this second component are available, in the same group format utilized for the preparation of the sessions.	
	In order to attend one of these tutorials, interested students must submit a full draft of their essay, including their name, student number and current chair/graduation studio. The submission deadline for this draft will be specified at the beginning of the period.	
	The course coordination will group the drafts and submit them to available tutors, by topic affinity. These tutors will read the drafts and subsequently organize a workshop with small groups of students. The aim of these workshops are to clarify doubts, elaborate on formal and stylistic concepts, and contribute thematically to the development of the final versions of the papers.	
	The fact that extra tutoring is available does not mean that the students are not encouraged to also seek additional support from their teachers in the other courses that constitute the graduation track.	
	Position papers are expected to be approximately 2000 2500 words in length, and should comply with academic and scientific standards in terms of form and style.	
	The fundamental aim of this assignment is to enable students to formulate a sound and consistent architectural position, in the	

face of the broader discussions presented as a partial state of the art of professional discussion, both within our Faculty and in contemporary architecture culture.

Articulating a position requires knowledge and understanding of a diverse array of postures, which are carefully considered in response to the problems of our time. Getting acquainted with diverse sources, authors and architectural examples; articulating the information contained in these sources; abstracting and operating with the useful and/or relevant ideas they represent; and (hopefully) further elaborating them into progressive architectural models; are all goals of this exercise.

It is assumed that the reflections generated during the course, and the resulting position paper, are active components of the broader exploration that is the graduation project. Research, reflection, discursive elaboration and historical contextualization are fundamental parts of a complete architectural intervention, meant to perform in site- and cultural-specific conditions, but also in the broader intellectual framework that is the architecture of our time.

In this sense, reflections should elaborate on the central concepts, methods and tools employed in the development of the architectural explorations leading to the Masters degree, at a level that transcends the simple description of steps taken in the elaboration of a project.

Cases of plagiarism will be dealt with according to standard procedures established by the corresponding authorities within the University.

Special Information

Each period will include a normal deadline for the presentation of the final position papers. Papers handed in within this deadline will be graded normally.

An extra hand-in moment will be offered for late papers, around the middle of the following academic period. Papers presented for this extra hand-in moment will only be evaluated in terms of pass (6,0/10,0) and fail (5,0/10,0 and under).

Remarks

Position papers will be evaluated on the following items:

- Has a question been clearly defined?
- Has the question been developed beyond its initial formulation?
- Does the paper acknowledge a state of the art, regarding this question?
- Has a position been taken, in relation to this state of the art?
- Is the paper coherent/concise?
- Does the paper follow a clear methodology?
- Are the sources pertinent, and well used?
- Is the language adequate?

Period of Education

Lectures take place during the first quarter of the period.

The second quarter of the period is used for the production of final position papers.

Individualized tutoring is offered upon request, to students who require extra help in the process of writing their papersk, during this second quarter.

Course evaluation

The course will be graded on the basis of a final, position paper, worth 100% of the grade assignable to the Lecture Series. This position paper is expected to range between 2000-2500 words, and must be submitted before a specified deadline.

Only papers accepted and graded with a mark above 5,0/10,0 will be eligible for re-takes or further corrections.

Close attention must be paid to the fact that a passing grade in this course is necessary to apply for a Studio P4 presentation. Please note that the deadline for the presentation of these papers is indicated since the very beginning of the semester. This should allow you to plan the development of your essay without interfering with other deadlines. Conflicts with other courses should be negotiated with the Board of Examiners.

AR3AT060	New Urban Questions or Minor Infractions	3
Responsible Instructor	Dr.ir. H. Sohn	
Course Coordinator	Dr.ir. H. Sohn	
Instructor	Dr. S.A. Read	
Instructor	Dr.ir. A. Radman	
Instructor	Dr.ir. H. Sohn	
Instructor	Dr.ir. S. Kousoulas	
Contact Hours / Week x/x/x/x	26 hours per semester	
Education Period	2 4	
Start Education	2 4	
Exam Period	none	
Course Language	English	
Required for	MSc3 elective course. Open to all MSc3 Architecture students.	
Expected prior knowledge	Competency in English, research and writing skills.	
Summary	<p>The New Urban Questions lecture series explores contemporary concerns surrounding debates emerging from the intersection of the discursive practices and the material practices, including architecture, urbanism and the spatial disciplines, critically interrogating the contemporary situation of urban environments as the locus of diverse epistemologies of space and matter. Each week expert speakers and researchers will introduce relevant themes departing from specific philosophical and theoretical positions and modes of inquiry, relating them to the architectural and urban practices and attitudes of the present either by means of the analysis of specific case studies, or through the development of sound theoretical argumentation. Ranging from investigations on the implications of philosophical and theoretical strands upon the practice and discourse of architecture, to questions that raise the significance of ethics, politics and agency within shifting geographies of power and knowledge, the lectures in this series address impending material questions at a time of paradigmatic global change.</p>	
Course Contents	<p>The New Urban Question lecture series offers students an exciting journey through some of the most important paradigmatic shifts, "turns", and transformations undergone in the study and understanding of the (urban) environment since the stirring social and political movements of 1968. Without attempting to portray these shifts in a linear fashion, or as an unproblematic chronological sequence of causes and effects, the series will nevertheless start by contextualising the explosive period between 1968-1972 when the "urban question" was first formulated (Manuel Castells, 1968), tracing its transformations into contemporary or "new urban questions" (Andy Merrifield, 2014) and highlighting the moments when bifurcations occur in discourse, practice and theory. One such bifurcation is exemplified by the so-called 'assemblage urbanism' approach vis-a-vis the apparently stubborn remainders of 'critical urbanism'. Further, the lectures will investigate diverse 'turns' (the 'spatial turn', the 'affective turn', the 'cultural turn', the 'speculative turn', i.e.) and their effect on theory and knowledge production. In this way, and through the specific perspectives of the research staff of the Architecture Theory Chair and occasional special guests, our lecture series will deal with some of the emerging theories and philosophical streams in a post-critical era, which arguably are better equipped to understand contemporary paradigmatic shifts in relation to material practices, including architecture, urbanism and the spatial disciplines.</p>	
Study Goals	<p>Upon successful completion of this lecture course the student will have:</p> <ul style="list-style-type: none"> - acquired adequate knowledge on contemporary urban and architectural theories and practices, and the diverse ways in which these may relate to a host of social, cultural, spatial and politico-economic transformations and paradigmatic shifts since 1968 - developed an understanding of the relationship between the material and the discursive practices and their impact in the production of the environment or milieu - gained insight into the panoply of theoretical frameworks and research methodologies involved in the production of knowledge of architecture and urbanism, and successfully apply and develop these within their own thought processes and design work - further practiced a set of relevant academic skills towards the production of qualitative research reports and academic argumentation - understood the importance of the societal and cultural implications, as well as ethical considerations, of conducting independent academic research and writing 	
Education Method	<p>The course follows a weekly lecture structure. Students are expected to attend the lectures, participate in the part reserved for questions and discussions, and prepare the readings mentioned in the course syllabus prior to each lecture. Students submit a (free-theme) academic essay at the end of the term.</p>	
Literature and Study Materials	<p>The themes of the lectures require some preparation. Students are encouraged to consult the recommended readings indicated in the course syllabus in advance of each lecture. For additional reading recommendations students are welcome to contact the lecturers individually.</p>	
Prerequisites	<p>Students interested in enrolling in this course must have completed all their MSc1 and MSc2 courses prior to registration in this course.</p>	
Assessment	<p>Students will be assessed with a short academic essay (2,500 - 3,500 words) on a topic of their interest and choice. These topics may be related directly to the overall theme of the lecture series, to one of the lecture themes, to the students' own graduation project or research, or to their individual passions or interests as long as these are substantiated in academic terms.</p>	
Exam Hours	n/a	
Permitted Materials during Tests	n/a	
Special Information	<p>The maximum marking period is 10 working days after the final deadline. Marks will be registered ahead of the following term.</p>	
Period of Education	<p>This course is offered in the second quarters of each academic term (Q2 & Q4)</p>	
Minimum aantal deelnemers	15	
Maximum aantal deelnemers	45	

AR3CP010	Complex Projects Graduation Studio	15
Responsible Instructor	Prof.ir. C.H.C.F. Kaan	
Course Coordinator	M. Triggianese	
Instructor	Dr. O. Caso	
Instructor	M. Triggianese	
Instructor	Ir. H.A. van Bennekom	
Instructor	T. Merkeley	
Instructor	Ir. H. Smidihen	
Instructor	S. Janusz	
Contact Hours / Week x/x/x/x	X/X/X/X	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Required for	MSc4	
Expected prior knowledge	completed MSc1 and MSc2	
Course Contents	<p>In the graduation studio all elements of the building and design will be seamlessly integrated into a clear compelling project that touches on all issues from analysis, problem definition, urban design, building implementation, building concept, all the way to materialization, critical detail and all based on a clear narrative. The assignment for the MSc3 CP Graduation Studio will develop and integrate an architectural solution within a complex urban context of the city.</p> <p>During the MSc4, the architectural design brief will be developed into a clear and comprehensive architectural design till scale 1:1. The architectural design proposal clearly results from the research and urban strategy made during the MSc3.</p>	
Course Contents Continuation	<p>Phase 1 (P0.5): Kick Off Urban Analysis and Research Studio will start with the personal introductions: each student will present their fascinations, favorite personal project and motivation for the studio. Each group will be divided into three sub-groups focused on coordinating three main group deliverables over the year: Site Models, a Wallpaper & Books. The first weeks of the studio will focus on producing a clean CAD drawing, high resolution satellite map, a 3D model, group physical site model together with collecting materials for the group book. This phase will end with the presentation of the first impressions of each site and initial suspicions.</p> <p>Phase 2 (P1.0) Research Students will use the work knowledge developed from phase one to continue and develop their research and understanding of the site. Each student should define a topic he is interested in, and develop it further in relation to the site. This will be the basis for development of the thesis topic and main research questions. All the individual research will be collected in the Site group book. In this phase students will do a site visit and a field trip to a comparable context to the site. The trip will focus on observation, sketching, photo & video recording, and interviewing local residents. By the end of this phase students should formulate clear conclusions from the research, develop a premise for their thesis, and define a location for their thesis project.</p> <p>Phase 3 (P1.5) Concept Urban Design and Building Concept This phase will focus on typological research and development of the program. In order to truly understand the urban condition of the site, each student will make a detailed drawing analyses of one building (building complex, urban formation) on their site. The same building should be compared through analyzing one or more foreign references. Further more, students should make a library of references, and test at least one of them by implementing it in the physical model. By the end of this phase, students should develop preliminary program proposal, determine their site location and show a detailed understanding of the program requirements and the needs of the site.</p> <p>Phase 4 (P2) Finalizing In this phase, students will finalize all their work and prepare themselves for the final P2 presentation. Students should finalize and revise the urban analysis, seminar research, trip conclusions and typology research. Additionally develop a design brief for the project defining the urban parameters, site opportunities, potential massing, program mix, density, structural and climate requirements etc. The design proposal should be a result of the research and well linked to the thesis topic combined into a clear project narrative.</p>	
Study Goals	<p>Upon completion of the MSc1, 2, 3 & 4 studio trajectory the student:</p> <ul style="list-style-type: none"> Has developed the skills in architectural design satisfying both aesthetic and technical/functional requirements. During the trajectory the complexity of the architectural design increases leading to a level fit for architectural practice. During this trajectory skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology and human sciences. Additionally, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and society's needs, including environmental aspects. During MSc1, 2, 3 & 4 process skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing. Together with the training with regard to aspects of building technology, during the MSc1, 2, 3 & 4 process skills are acquired to incorporate an understanding of the design process with regard to structural design, materialisation of buildings, comfort and climate control. <p>The graduation report demonstrates the students ability to employ moral sensibility, analysis, creativity, judgment, decision and argumentation skills regarding Architectural ethics and his/her future role as architect. The individual graduation report should not only contain an elaboration regarding the Graduation Projects societal and disciplinary relevance, but has to also address design ethics and the way in which intercultural issues were addressed in the graduation project.</p>	
Education Method	<p>PROCESS & PRESENTATION: Getting to a result is just as important as the result. Working process, consistency & quality of weekly work will have influence on final grades. It is important to record progress and development of the work and use it in the final narrative and argumentation of the design.</p> <p>THINKING Theory, Research, and Analysis (Seminars, Tutorials & Assigned Reading) Each student needs to research curated research topics following the time-line of the project, covering the topics of design, art, theory, history, data graphics, sustainability, and urbanism. All student work (including other courses) should be channeled towards the design studio so that work is streamlined as efficiently as possible and everything produced supplements the overall design process.</p> <p>DOING Design Development (Core Studio, Site Model, Process Book) Each student will produce an on-going book including weekly research assignments, weekly updates, and all supplemental research material. This book will be continuously updated throughout the year and will show the creative and analytic process of the student. Most important elements of the book will be combined into the joined group book. Next to the research students will</p>	

	<p>be encouraged to investigate ideas thought the model making.</p> <p>COMMUNICATING</p> <p>Design Communication (Final Design Book, Panels & Presentation Refinement)</p> <p>Each student will produce a Design Book with heavily edited and curated material telling the story of your design process and final project. This is the final document for your project, but will be presented throughout the year in a process of continual refinement. The goal is to continually refine the methods of representing, presenting and communicating the urban and architectural work. The student should explore methods of presentation, storytelling and design documentation.</p>
Course Relations	Complex Projects seminar 'City of Innovations' (AR3CP040) is paralleled by and connected with the studio work. It is obligatory to follow this course when participating into the design graduation studio of Complex Projects.
Reader	Reader (syllabus) with the studio programme, the basic literature and weekly schedule will be available one week prior to the first studio meeting
Assessment	<p>MSc3:</p> <p>Research Book and Graduation Plan</p> <p>Formal presentations (P1,P2-go/no go) and informal presentations (P0.5, P1.5) Urban strategy and development of the design brief related to the strategy</p> <p>Group site research based on making physical model Group research book</p> <p>MSc4:</p> <p>Architectural design of a building (group of buildings) including surrounding (public, collective, private) areas. Materialization and interior design. Building physics and construction, including climate, load bearing construction and detailing P2.5 Informal presentation.</p> <p>P3 intermediate midterm review presentation.</p> <p>P4 Go-NoGo presentation.</p> <p>P5 Final presentation and graduation ceremony.</p>
Enrolment / Application	Students who did not enrol during the pre-enrolment period can enrol for one of the studios with places left.
Special Information	<p>The locations of the Complex Projects graduation project are often abroad. When the graduation project is located in The Netherlands, an excursion abroad is recommended in the studio programme for researchrelated activities.</p> <p>Excursion to the location takes place before P1. Participation into this excursion, although not mandatory, is recommended. This implies for students additional costs for travelling and accommodation, which could be quantified between 500 - 1800 euros per person, depending on location and possibilities. Please contact the studio coordinator to know this year's case studies.</p>
Tags	<p>Building & Spatial Development</p> <p>Design</p> <p>Drawing</p> <p>Sustainability</p> <p>Technology</p>
Period of Education	Semester
Concept Schedule	MSc3 Design studio will be preferably held on Friday. A possible alternative schedule could consider the Tuesday afternoons for design studio assistance.
Leerstoel	Complex Projects.
Minimum aantal deelnemers	7
Maximum aantal deelnemers	36
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/

AR3CP040	City of Innovations	6
Responsible Instructor	Prof.ir. C.H.C.F. Kaan	
Course Coordinator	M. Triggianese	
Instructor	M. Triggianese	
Instructor	Prof.ir. C.H.C.F. Kaan	
Responsible for assignments	M. Triggianese	
Contact Hours / Week x/x/x/x	2 hours per week 16 hours per Quarter	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Required for	MSc 4	
Course Contents	<p>AMBITION In 1950, 30 per cent of the worlds population was urban, and by 2050, 66 per cent of the worlds population is projected to be living in cities. Mega-cities will have more than 10 million inhabitants. Cities need to be innovative in order to stay competitive. The increasing number of housing projects and infrastructural developments might cause huge impact on the city, in terms of energy efficiency, climate, noise and air pollution, waste water treatment and mobility. In this context, we, as designers, expose the debates surrounding the technologies, speculate on their evolution, and project new realities that technology may construct (speculations at building/urban scale, highway and buffer zones, district, town, neighbourhood etc.).</p> <p>OBJECTIVE The aim of the seminar is to: - analyse and understand how technological innovation and new concepts on contemporary topics (such as health-mobility and energy) will affect the development of our cities. - examine examples of around the world to compare with the city-location of the graduation studio understanding the effect of data-driven city developments - collect data into research books - argument the investigations into journalistic style articles</p> <p>Multiple aspects that influence architecture and urban configurations of cities will be investigated through the following sub-topics: transportation, connectivity, new mobility concepts, housing, climate change mitigation, cultural planning, health and private, public and semi-public spaces, circular economy, politics, resiliency, adaptation strategies. Research questions that might be addressed in this seminar are the cultural, climate and political differences, that are important as a background to the site and projects studied. The seminar challenges students to develop critical and comparative investigations on the impact of data and technology on city developments, policies and building, focusing on the site of their graduation studio in response to particular social, environmental, political and economical references.</p> <p>STRUCTURE Phase 1 Kick-Off Seminar will start with introduction sessions with lectures on selected topics, such as: Mobility, Health and Energy. After Assignment #1 students will be divided into sub-groups based on their research interest. This phase will end with the presentation of the first researches on the topic also in relation to the sites.</p> <p>Phase 2 Research Students will use the knowledge developed from phase one to write the 'journalistic style' papers and understanding of the topic in relation to the site. The template of the paper will be given by the seminar coordinator. In this phase students will do a field trip abroad. Students will continue the investigations in sub-groups tutored by the seminar leaders. Roundtable discussions will take place in the crossovers sessions.</p> <p>Phase 3 Finalizing In this phase, students will finalise all their research positions for the final P2 presentation. Students will translate their fascinations and positions in the form of a collage and they will finalise a topic-related Research Book.</p> <p>EVALUATION Evaluations will be based on the research approach, dedication, commitment, effort and improvement of the team in the investigation of the City (and the project area). Concrete aspects for evaluation are: research work, clarity of the problem statements, originality of the final presentation.</p>	
Study Goals	<p>The student: Has further knowledge in the field of theories in architecture, environmental technology and human sciences, which enable him/her to link theory and design skills within the design studio in an adequate way. Has an understanding of the way in which architectural positions are taken in the current architectural discourse and how these positions are related to the arts.</p>	
Education Method	<p>The CP seminar (AR3CP040) is connected with Complex Projects graduation studio and runs parallel to other seminars: the lecture series Research Methods (AR3A160) and New Urban Questions on Minor Infrastructure (AR3AT060), only in Q4. It consists of multidisciplinary capita selecta at TU Delft and workshops between researchers, students and potential external partners. Roundtable discussions in groups and individual meetings are part of the Education.</p>	
Books	<p>Recommended Literature: Banham, R. (1971) Los Angeles The Architecture of four Ecologies, Penguin Press, London BNA Onderzoek (2017) Snelweg x Stad. The Highway x City, the Future of the Urban Ringroad. Fuller, Buckminster (2008, first published 1969). Operating Manual for Spaceship Earth. Lars Muller Publishers. Koplan, J. P., & Fleming, D. W. (2000). Current and future public health challenges. JAMA, 284(13), 1696-1698. MacKay, David (2009) Sustainable Energy Without the Hot Air. UIT Cambridge Mens, N., Wagenaar, C. (2010). Architectuur voor de Gezondheidszorg in Nederland: NAI Uitgevers Rotterdam Rouillard, D. (2011) Linfraville. Futurs des infrastructures, Archibooks, Paris Rudofsky, Bernard (1987, first published 1964). Architecture Without Architects: A Short Introduction to Non-Pedigreed Architecture University of New Mexico Press. Scheer, L. en Ormel, (2002) Het welbevinden van mensen in zorginstellingen, Universiteit Leiden. Wagenaar, Cor (2011) Town Planning in the Netherlands since 1800: Responses to Enlightenment. Ideas and Geopolitical Realities, Rotterdam: 010 Publishers</p>	
Reader	Reader (syllabus) with the seminar programme, the basic literature and weekly schedule with the capita selecta will be available	

Assessment	one week prior to the first seminar meeting Written Report (article) Research Book
Special Information	The maximum marking period is 10 work days.
Period of Education	Semester
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

MSc 4 CP

AR4CP010	Complex Projects Graduation Studio	30
Responsible Instructor	Prof.ir. C.H.C.F. Kaan	
Course Coordinator	M. Triggianese	
Instructor	Dr. O. Caso	
Instructor	Ir. H.A. van Bennekom	
Instructor	T. Merkeley	
Instructor	Ir. H. Smidihen	
Contact Hours / Week	4 hours per week	
x/x/x/x		
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Course Contents	Continuation of MSc 3 graduation project	
	During the MSc4, the architectural proposal will be developed into a clear and comprehensive architectural design till scale 1:1. The architectural design proposal clearly results from the research and urban strategy made during the MSc3.	
Course Contents Continuation	The phases described below are as continuation of MSc 3.	
	Phase 5 (P2.5) Concept development	
	Building Logistics, Structure, Program, Sustainability & Circulation	
	The building concepts developed for P2 will be explored further and one should be selected to be developed further, for a program of 20,000-40,000 smq. The building concept should be clear, program placement explored, sustainable principles integrated early into design and circulation development should be studied here. By the end of this phase the function and form of the building should be clearly articulated and poised for further development. Structural concept should be developed and discussed with the BT mentor.	
	Phase 6 (P3) Design Development	
	Building Plans, Sections, Material Concept, Façade Concept	
	The spatial organization will be explored in more detailed plans and sections of the building; all the programmatic and functional aspects of the building should be developed in detail. Furthermore, students should already be thinking about a material concept and express their intentions through collages and quality references. This is also the phase where facade concept should be articulated. Students should also have a pre-visualization of the most important /interesting spaces in your building. Once the building is well underway students should zoom back and re-examine how the building is working within group strategies and make sure that architectural design decisions are reinforcing urban strategy into a clear narrative.	
	Phase 07 (P3.5) Materialization	
	Visualization & details	
	In this phase students should focus on the development of details together with technical and structural solutions. Material usage should be thoroughly examined and developed according to general building concept(s) Façade design should be finalised and overall appearance of the building in different scales clarified. All the decisions should be represented through the series of both external and internal visualisations.	
	Phase 08 (P4) Finalizing	
	Design development and seamless integration of previous phases	
	In this phase students should refine and develop their project based on advises from tutors and other crits in all previous phases. All plans, collages, drawings, diagrams will go through a refinement and clarification. All elements of building and design will be integrated into a clear compelling project that touches on all issues from analysis, problem definition, urban design, building in context, building concept, materialization, to critical detail and told in a clear story.	
	Phase 09 (P5) Postproduction	
	Final design, models & public presentation refinement (ie: book, model, panels)	
	Based on comments and mark-ups from P4s, students will have an additional month to make further refinements, build the models and make final touches to their presentations for the public jury and formal graduation. This phase will be all about the postproduction, books finish, poster refinement, narrative polished, models photographed, entire years work structured into a concentrated story about Havana and coherent design proposal.	
Study Goals	Upon completion of the MSc1, 2, 3 & 4 studio trajectory the student:	
	Has developed the skills in architectural design satisfying both aesthetic and technical/functional requirements. During the trajectory the complexity of the architectural design increases leading to a level fit for architectural practice.	
	During this trajectory skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology and human sciences.	
	Additionally, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and society's needs, including environmental aspects.	
	During MSc1, 2, 3 & 4 process skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing.	
	Together with the training with regard to aspects of building technology, during the MSc1, 2, 3 & 4 process skills are acquired to incorporate an understanding of the design process with regard to structural design, materialisation of buildings, comfort and climate control.	
	The graduation report demonstrates the students ability to employ moral sensibility, analysis, creativity, judgment, decision and argumentation skills regarding Architectural ethics and his/her future role as architect. The individual graduation report should not only contain an elaboration regarding the Graduation Projects societal and disciplinary relevance, but has to also address design ethics and the way in which intercultural issues were addressed in the graduation project.	
Education Method	Individual meetings at studio	
	Group presentations	
Assessment	MSc4:	
	Architectural design of a building (group of buildings) including surrounding (public, collective, private) areas. Materialization and interior design. Building physics and construction, including climate, load bearing construction and detailing	
	P2.5 Informal presentation.	
	P3 intermediate midterm review presentation.	
	P4 Go-NoGo.	
	P5 Final presentation and graduation ceremony.	
Special Information	The maximum marking period is 10 work days.	

Period of Education	Semester
Concept Schedule	Studio on Friday and Thursday
Leerstoel	Complex Projects, department of Architecture
Minimum aantal deelnemers	All students passing the MSc3 P2 examination are admitted to MSc4.
Maximum aantal deelnemers	All students passing the MSc3 P2 examination are admitted to MSc4.
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

MA

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

MSc 1 M and A

AR1A060	Delft Lectures on Architectural Design	3
Responsible Instructor	Dr.ir. S. Komossa	
Course Coordinator	Dr.ir. E.H. Gramsbergen	
Instructor	Dr.ir. E.H. Gramsbergen	
Instructor	Dr.ir. P.J. Teerds	
Instructor	Ir. L.G.K. Spoormans	
Instructor	Dr.ir. B.M. Jurgenhake	
Instructor	Ir. M.J. Smit	
Contact Hours / Week x/x/x/x	2 hours per week	
Education Period	1 3	
Start Education	1 3	
Exam Period	1 2 3 4	
Course Language	English	
Course Contents	<p>The Delft Lectures on Architecture Design highlights current issues of the architecture discipline against the background of the larger societal conditions that have an inevitable impact on the practice of design. Contemporary positions in architecture practice and theory will be discussed. Full professors, associate professors and researchers of the Delft Faculty of Architecture will address key contemporary topics, and investigate historical models and theoretical arguments while discussing the latest architecture projects as well as seminal cases.</p>	
Study Goals	<p>Key questions concern: - where do architects stand and what can they do? - which positions and practices are developed by architects? - what strategies and approaches were and are relevant?</p> <p>After completion of the course: Building on the architectural design courses of the Bachelor, the student has gained knowledge of relevant issues of the discipline of architectural design, practice and its body of knowledge, including the main theoretical concepts and models. The student is able to reflect critically on ethical positions taken by lecturers and expressed by their practises.</p>	
Education Method	<p>The student: - Has appropriate knowledge of the main issues of the discipline of architectural design, practice and its body of knowledge, including the main theoretical concepts and models. - Is aware of the larger historical development of the discipline of architectural design in relation to the main theoretical concepts and models deployed of architecture, art and technology, their application in specific cases as presented in the lecture series addressing current issues of architectural practice and society. - Is able to interpret the architectural design production, both historically and current, in terms of the concepts and models of design as discussed in the lecture series; this includes the larger context of the manifold relations between architecture, the city and society and the relations between design concepts, building production and materialization.</p>	
Assessment	<p>Double lectures (2 x 45 minutes) by full professors, associate professors and researchers of the department of Architecture and other faculty members. Lectures are concentrated in the first half of the semester, during 7 weeks. Generally, the double lectures start with introducing the 'issue', after which the 'architectural positions' are discussed. The lecture coordinators are present to introduce the speakers and the topic, and to moderate questions from the students.</p>	
Special Information	<p>The format of the examination is a digital exam with a duration of three hours, which means the examination is taken place in a specifically equipped examination hall on the campus. The maximum marking period is 10 work days.</p>	
Period of Education	The maximum marking period is 10 work days.	
Course evaluation	Quarter	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1A065	Delft Lectures on Architectural History	3
Responsible Instructor	Prof.dr.ing. C.M. Hein	
Responsible Instructor	Dr. H.D. van Bergeijk	
Course Coordinator	Dr. H.D. van Bergeijk	
Contact Hours / Week x/x/x/x	X/X/X/X	
Education Period	2 4	
Start Education	2 4	
Exam Period	2 3 4 5	
Course Language	English	
Course Contents	This course provides a deepening of a particular part of the knowledge that the student has gained in the earlier stages of his curriculum. It consists of a lecture series of Capita Selecta dealing with the modern architectural production from 1850 till about 1940. This year the course will focus especially on the birth of modernism in the periode from the beginning of World War I till the collapse of the stock market in 1929. De Stijl-artists and the Bauhaus will be the core of the course but also figures like Dudok, Stam and others will receive due attention. We will try to explore how the abolition of history led to a new concept of society and the underlying concepts of civitas. A belief in the machine produced also a new ethics that will have an influence on the development of society in the 20th and 21st century.	
Study Goals	The student - has acquired a sufficient framework to place and value different contributions to the history of the discipline and society in general. - has gained insights on a specific theme and has deepened his knowledge - has an understanding of some of the tools of the architect from a historical point of view. - knows how to apply certain terms and is critical to their meaning - can relate to the work of architectural historians - is capable of giving a motivated and well-argued answer to the questions - has an idea of the importance of the ethical position of the architect and critic in relation to certain important issues	
Education Method	Lectures Readings	
Literature and Study Materials	All students should read: - Michael White, De Stijl and Dutch Modernism (Manchester University Press).	
Assessment	Further readings will, if necessary, be provided through Blackboard.	
Special Information	Exam with essay questions in which the students exposes his knowledge. The student can choose from the questions. The answer to an essay question should be given in about 500 words. The knowledge that the students shows should be related to his readings and the ideas that he has formed during the course. Students are expected to challenge themselves.	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1A075	Delft Seminars on Building Technology	6
Responsible Instructor	Prof.ir. M.F. Asselbergs	
Responsible Instructor	Ir. B. Gremmen	
Course Coordinator	Ir. B. Gremmen	
Contact Hours / Week x/x/x/x	40 hours per quarter	
Education Period	1 3	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	We expect that you followed the bachelor in Delft or a similar education elsewhere in the world. You have gained knowledge and practices in the next topics:	
	<ol style="list-style-type: none"> 1. constructional and structural detailing (1:20/5/2/1) 2. Structures/constructions in steel, wood and concrete 3. Climate issues, ventilation, heating and cooling 	
	Literature list for International students, master Architecture We take the content of these books as read before participating.	
	<p>Components and connections Author: Meijs, Maarten Contributor: Knaack, Ulrich Publisher: Birkhäuser Publish date: 2009 Document type: book ISBN: 978-3-7643-8669-6 Subtitle: principles of construction Classification: UJA / Building structures: general Chapters all</p>	
	<p>Building construction illustrated Author Ching, Francis D.K Publisher Wiley Publish date 2008 Document type book ISBN 978-0-470-08781-7 Edition 4th ed. Chapters all</p>	
	<p>Structures Author Schodek, Daniel L. Publisher Pearson/Prentice Hall Publish date 2008 Document type book ISBN 0-13-178939-2 Edition 6th ed. Chapters 1,2,3,4,6,7,9,10,13,14,15,16,</p>	
	<p>Climate and Architecture Author Dahl, Torben Publisher Routledge Publish date 2010 Document type book ISBN 978-0-415-56308-6 Edition 1th ed. Chapters all</p>	
	<p>Building Physics Author Linden, A.C. van der Publisher Thiemeleuhenhoff Publish date 2013 Document type book ISBN 978-9006-95155-4 Edition 1th ed Chapters all</p>	
Course Contents	In this course you will make a new technical design for a selected fragment of a case study building or a fragment. In two posters (A0) you will present your new design in technical drawings 1:20 and 1:5/1. Next you will explain the structural design, climate design and facade design in informative diagrams, illustrated with photographs and sketches.	
Study Goals	The student:	
	<ol style="list-style-type: none"> 1. Is able to use research skills in technological design issues and is able to formulate an accurate guiding theme or position, that guides the design process 2. Is able to recognize technical design problems and is able to select -in a substantiate manner- the best solution from a series of (self) formulated possible design alternatives 3. Is able to interpret and integrate the aspects of structure design, construction (facade) design and climate design in a design of a building 4. Is able to provide innovative design solutions especially with regard to the use of energy and providing comfort in building design 5. Is capable of drawing and presenting architectural and technical aspects of a design in a coherent and clear manner 	
Education Method	work groups (seminars)	
Books	<ul style="list-style-type: none"> - Millais, M., 'Building structures, a conceptual approach', London, 1999 - Jones, B., Peter, 'Modern Architecture Through Case Studies', Oxford, 2002 - Daniels, 'Advanced Building Systems, a technical guide for architects and engineers', Basel, 2003 - Frampton, 'Studies in Tectonic Cultures', The MIT Press, 1995 - Ronner, Kolliker, Rysler, 'Baustuktur', Basel, 1995 - Schittich, C., 'In detail: building skins: concepts, layers, materials Basel', Basel, 2001 - Watts, A., 'Modern Construction Handbook', Wien, 2001 - Watts, A., 'Modern Construction Facades', Wien, 2005 	

Assessment	<ul style="list-style-type: none"> - Bachman, L.R., 'Integrated Buildings', Hoboken Wiley, 2003 - Cook, P., Primer, 'Emancipation of Structure', London, 1996 - Deplazes, D., 'Architektur Konstruieren', Basel, 2005 - Addis, B., 'Building, 3000 years of Design Engineering and Construction', London, 2007 <p>The examination will take place in the form of a poster (pin-up) presentation in the studio spaces. Examination will only take place during the final presentations of the course. The date of the final presentation will be announced in the seminar handout. You will receive a mark between 1 and 10 with the following meaning:</p> <p>10 Excellent 9 Very good 8 Good 7 Quite sufficient work 6 Sufficient</p> <p>5,5 Almost sufficient, can be corrected with a repair task without tutoring. Only minor deficiencies can be fixed as a repair task, decided by the tutor. Must be finished within two weeks after the final presentation. Second repair is not possible. Your work will be marked with an V.If the repair does not higher the grade up to V you will have to redo the course.</p> <p>in the case of a delayed evaluation (by request of the study counsellar), the figure will be a maximum of 6.</p> <p>5 and lower, Unsufficient, you have to redo the course next semester</p> <p>NV in case you did not finish the course</p>
Special Information Period of Education Concept Schedule	<p>The maximum marking period is 10 work days.</p> <p>Quarter</p> <p>Q1: In the weeks 1.1 up to and including week 1.6 of the 1st quarter you need to reserve in time Q3: In the weeks 3.1 up to and including week 3.5 of the 3rd quarter you need to reserve in time</p> <p>Tutoring: 40 hours Independent study: 128 hours</p> <p>Seminars will take place on Tuesdays and Fridays, mornings or afternoon. Final presentation will take place on the Friday of the week 1.6 (Q1) and 3.5 (Q3)</p>
Leerstoel Course evaluation	<p>Architectural Engineering</p> <p>For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/</p>

AR1MET010	Ways of Doing	12
Responsible Instructor	Dr.ir. K.M. Havik	
Course Coordinator	Dr.ir. P.J. Teerds	
Instructor	Dr.ir. P.J. Teerds	
Instructor	Dr.ir. W.W.L.M. Wilms Floet	
Contact Hours / Week x/x/x/x	8 hours per week	
Education Period	1 2	
Start Education	1	
Exam Period	none	
Course Language	English	
Summary	<p>The studio Ways of Doing aims to develop and assess distinct methods that allow for innovative way of analysis, architectural design, and spatial intervention in challenging (post-)industrial regions in the Low Countries. Every semester a different site to work on is chosen. These (post-)industrial areas often are dominated by characteristic constructions and buildings: huge installations, factories, warehouses and offices, some still in use, others empty. Particularly in the post-industrial sites, often social questions and signs of foreclosure dominate both the political and the physical landscape. Cities make redevelopment plans, although often it is quite difficult to find the right program and approach in order to revitalise such areas as the local economy.</p> <p>The aim of education in the Methods & Analysis MSc1 studio is to merge analysis and design extensively, in order to face difficult architectural, spatial, technological, social and political questions that dominate these (post-)industrial landscapes.</p>	
Course Contents	<p>From Otto Wagner to Aldo Rossi and Robert Venturi, architects have always developed new approaches and tools to react to changing urban conditions. The studio Ways of Doing wants to position itself within this architectural tradition and asks: Which toolbox can we cultivate to confront new urban ecologies like (post-)industrial landscapes? Through particular assignments, it aims to develop and assess distinct methods that allow for innovative way of analysis, architectural design, and spatial intervention in the challenging reality of (post-)industrial landscapes in various cities in The Netherlands and Belgium. Each semester another site is chosen to be investigated. These (post-)industrial areas often are dominated by characteristic constructions and buildings: huge installations, factories, warehouses and offices, some still in use, others empty. Particularly in the post-industrial sites, often social questions and signs of foreclosure dominate both the political and the physical landscape. Cities make redevelopment plans, although often it is quite difficult to find the right program and approach in order to revitalise such areas as the local economy. Students investigate the spatial, social and political situation by studying particular themes, like the atmosphere, the infrastructure, public space, as well as by using specific methods of analysis and design, like soft-mapping and drawing sections, or developing narratives or spatial poems. Analysis, in this particular perspective, is extensively part of the design-approach that the student will develop during the studio. Part of this approach also is the choice of location, program and aim of a spatial intervention in the area of study.</p>	
Study Goals	<p>Upon completion of the Master 1, 2, 3 & 4 studio trajectory the student:</p> <ul style="list-style-type: none"> - Has developed the skills in architectural design satisfying both aesthetic and technical / functional requirements. During the trajectory the complexity of the architectural design increases leading to a level fit for architectural practise. - During this trajectory skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology and human sciences. - Additionally, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and societies needs, including environmental aspects. This includes moral decision and argumentation skills regarding architectural ethics, especially when addressing social, political, environmental and technological issues. - During Master 1, 2, 3 & 4 process skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing. - Together with the training with regard to aspects of building technology, during the Master 1, 2, 3 & 4 process skills are acquired to incorporate an understanding of the design process with regard to structural design, materialisation of buildings, comfort and climate control. 	
Education Method	<p>The msc1 studio Ways of Doing takes up the task to investigate new tools and methods to address the challenging paradox of historical presence on the one hand, and large new developments on the other. The studio does so by constantly shifting to different methods, in order to look at the site and the research question from various perspectives, which can vary from strict architectural towards technological, and from spatial to political perspectives.</p> <p>During the course, different methods will be applied: from fieldwork to investigations by means of narrative or sections; from material explorations to the development of sequences of use; by focussing on building-technological aspects or on atmospheric aspects of spaces; from focusing on basic architectural elements such as floor, wall and roof, to articulating structural aspects like repetition and hierarchy.</p> <p>Students will start to work in small groups on distinct research themes the result of these investigation is understood as the share knowledge base that is developed in the studio. Based on these insights, the students either continue to work in groups or work individually on the proposal of a spatial intervention in a location of choice.</p>	
Course Relations	<p>This design studio is accompanied by two theoretical seminars, Architectural Tools (AR1MET030) and The Roles of the Architect (AR1MET040) that respectively investigate the instruments used by architects to develop their plans and ideas, and how these affect the very outcome of the design-process, and explore the various roles architects can take within contemporary practices and society.</p>	
Assessment	<p>The course is assessed through a mid-term review and a final presentation of the project. However, as for this course the process is as important as the final design, the students need to present not only the project, but also substantial intermediate findings. The tutors will assess, during the mid-term review and the final presentation the way students understand and apply different methods offered. Particular attention will be given to the question how the student succeeds in using methods as offered in the studio, and how the student is able to formulate particular design hypothesis based on these exercises. The consistency of the project on a methodological, architectural and technical level is crucial for the final assessment. For the mid-term review as well as for the final presentation, external critics will be invited.</p>	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1MET030	Tools of Architecture	3
Responsible Instructor	Dr.ir. P.J. Teerds	
Responsible Instructor	Dr.ir. K.M. Havik	
Course Coordinator	Dr.ir. P.J. Teerds	
Contact Hours / Week x/x/x/x	4 hours per week	
Education Period	1	
Start Education	1	
Exam Period	1	
Course Language	English	
Expected prior knowledge	Bachelor	
Course Contents	<p>New architectural projects are often presented in the media as pristine buildings, barely accompanied by a little sketch or a few anecdotes on the original concepts. Present architectural culture seems to refrain from explicitly assessing the way buildings come into being. We know little on the instruments that contemporary architects use to design and investigate, as well as those to present their projects to commissioners, the visual and textual tools that they apply to clarify aims, convince participants, and rouse ideas. These tools of architecture, however, have a huge impact on the project itself. The instruments not only pre-scribes particular approaches, affect certain effects, but also reveal the scope and aims of designers, and how they engage with building cultures, technology, and the public.</p> <p>In this seminar students will investigate particular classical and contemporary tools architects use (and used) in their practice. It will probe into questions as: How does an architect proceed? What visual and textual instruments are used? Which tools have played a decisive role in the design process? The course aims to reclaim full attention for the design and presentation tools of architects. It examines specific architectural projects, focusing on how certain ideas and theories emerge as strategic within design procedures. It investigates how architects resolve their stated objectives by the employment of specific tools. The final objective of this course is to recover the capacity of understanding the tools of recent architectural practice and develop a consistent framework for its evaluation.</p>	
Study Goals	<ul style="list-style-type: none"> - During this series of seminars, skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology and human sciences. - During this series of seminars, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and societys needs, including environmental aspects. This includes moral decision and argumentation skills regarding architectural ethics, especially when addressing social, political, environmental and technological issues. 	
Education Method	Seminar	
Course Relations	Msc1 Design Studio Ways of Doing (AR1MET010); MSc1 Seminar Architectural Reflections: "The Roles of the Architect" (AR1MET040)	
Literature and Study Materials	Stan Allen, Architecture, Technique and Representation, London 2009, Routledge	
Assessment	Written Essay, Oral Presentations, Case Studies, models, drawings	
Period of Education	Quarter	
Leerstoel	Methods & Analysis	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1MET040	Roles of the Architect	3
Responsible Instructor	Dr.ir. P.J. Teerds	
Responsible Instructor	Dr.ir. K.M. Havik	
Course Coordinator	Dr.ir. P.J. Teerds	
Contact Hours / Week x/x/x/x	4 hours per week	
Education Period	1	
Start Education	1	
Exam Period	2	
Course Language	English	
Expected prior knowledge	Bachelor	
Course Contents	<p>Today changing territories, altering production modes and new spatial questions require that architects redefine their roles. An increasing number of contemporary architects question the existing forms of design practice: they want to move away from more conservative roles of architects as top-down planners and explore other ways of doing.</p>	
	<p>This seminar examines the development of modern architectural practice, focusing on the changing definitions and positions of the architect, with the goal of providing new perspectives on how architects practice today. The focus is on the positions that architects have been taking vis-à-vis clients, construction industries, other artistic practices (literature, fine arts, photography), design professions (engineering, industrial design), and society (the public, the political realm, history). The seminar will reflect upon the related definitions of the figure of the architect ranging from artistic genius to facilitator, from generalist to populist, from starchitect to Do-It-Yourself, from designer to educator. This reflection, of course, also urges the student to position oneself within the contemporary field of architecture. What is the preferred aim of architecture, and how to position oneself vis-à-vis this ambition?</p>	
Study Goals	<ul style="list-style-type: none"> - During this series of seminars, skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology and human sciences. - During this series of seminars, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and societys needs, including environmental aspects. This includes moral decision and argumentation skills regarding architectural ethics, especially when addressing social, political, environmental and technological issues. 	
Education Method	Seminars	
Literature and Study Materials	Jeremy Till, Architecture Depends, Cambridge (Mass.) 2013, MIT Press.	
Assessment	Written Essay, Oral Presentations, Case Studies	
Period of Education	Quarter	
Leerstoel	Methods & Analysis	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

Starting Course MSc1

ARX071	Workshops Faculty of Architecture and the Built Environment	1
Responsible Instructor	Dr.ir. R. Cavallo	
Contact Hours / Week x/x/x/x	X / 0 / 0 / 0	
Education Period	1	
Start Education	1	
Exam Period	none	
Course Language	English	
Course Contents	<p>All new MSc students of the Faculty of Architecture and the Built Environment will start the academic year 2018-2019 with a 3-day workshop programme on 30 & 31 August and 3 September 2018.</p> <p>The programme is developed in cooperation with TPM colleagues of the section "Ethics & Philosophy of Technology". With a mix of lectures, workshops and sessions guided by teachers of the faculty, you will be introduced to (design) ethics, scientific integrity and intercultural communication.</p> <p>With these workshops you will make a first start to cover the ethics engineering learning goals of the MSc programmes. Further, we wish to enhance the interaction between all new students, both Dutch and International, and to introduce you to settings, methods and procedures of the faculty.</p> <p>Participation in the workshops is mandatory for all students starting their MSc 1 programme in September.</p>	
Study Goals	- The student has a basic understanding of moral sensibility, moral analysis skills, moral creativity, moral judgement skills, moral decision-making skills and moral argumentation skills.	
Education Method	Lectures, workshops, role playing game, assignment	
Assessment	Workshops attendance Assessment: V (passed) or NV (failed)	
Special Information	<p>The academic year will start with a three day workshop programme. With a mix of lectures, workshops and sessions guided by teachers of the faculty, you will be introduced to (design) ethics, scientific integrity and intercultural communication. With these workshops you will make a first start to cover the ethics engineering learning goals of the MSc programmes. Further, we wish to enhance the interaction between all new students, both Dutch and International, and to introduce you to settings, methods and procedures of the faculty. The workshops will lay the foundation for your master studies. It is highly recommended for both Dutch and International students to participate in this programme and you will be granted 1 EC after following the whole programme. This EC will be used in your electives list Master 2/3.</p> <p>For more information see website: https://www.tudelft.nl/studenten/faculteiten/bk-studentenportal/onderwijs/master-of-science/workshops-master-students/</p>	
Period of Education	3 days	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

MSc 2

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

Compulsory

AR2A015	Delft Lectures on Architectural Sustainability	3
Responsible Instructor	Ir. P.G. Teeuw	
Responsible Instructor	Prof.dr.ir. A.A.J.F. van den Dobbelsteen	
Course Coordinator	Ir. P.G. Teeuw	
Contact Hours / Week x/x/x/x	14 hours per quarter	
Education Period	1 3	
Start Education	1 3	
Exam Period	1 3 4	
Course Language	English	
Required for	Compulsory MSc2 course for the variant (track) Architecture of the master Architecture, Urbanism and Building Sciences.	
Course Contents	This lecture series emphasizes the possibilities of architecture itself as a means to promote sustainable development. Architecture as a tool to create a more sustainable world. Rather than focus on added sustainable technologies, this course searches for architects possibilities to design good sustainable architecture and a smart organisation. A 'sustainability' driven design attitude should become a second nature for students.	
Study Goals	The student: - Has an overall understanding of the factors associated with: sustainable development related to architectural design. - Has an understanding of the architects responsibilities towards sustainable design. - Is able to position him or herself in matters concerning the relation between sustainable development in general and architecture in particular. - Is capable to formulate possible architectural solutions for building-related environmental issues and has an understanding of their social, ethical and economic dimensions.	
Education Method	Lectures and debate	
Literature and Study Materials	- Reader Delft Lectures on Architectural Sustainability; edition course year 2018-2019, September 2018 (Brightspace) - Jón Kristinsson, Integrated Sustainable Design, Delft/Deventer 2012 - Required reading for the exam: Chapters 2, 3, 4, 5, 8, 9, 10 (Bouwshop) - Anke van Hal, The merger of interests, Breukelen 2009 - Required reading for the exam: up to and including page 17 (Download from the internet) - Anke van Hal, The merger of interests 2.0, Breukelen 2014 - Required reading for the exam: Chapter II and III (Download from the internet) - Some parts of the website http://www.urbangreenbluegrids.com as links included in the reader; edition course year 20182019, September 2018 (Brightspace) - Some articles of the book Circulariteit op weg naar 2050? red. Peter Luscuere 2018 (download from the internet)' pages indicated in the reader; edition course year 20182019, September 2018 (Brightspace)	
Assessment	Written exam	
Special Information	The maximum marking period is 15 work days.	
Period of Education	Quarter	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

Compulsory Choice

AR2A010	Architectural History Thesis	6
Responsible Instructor	Prof.dr.ing. C.M. Hein	
Course Coordinator	Prof.dr.ing. C.M. Hein	
Instructor	Drs. C.A. van Wijk	
Instructor	Dr.mr. E. Korthals Altes	
Instructor	Dr. H.D. van Bergeijk	
Instructor	Dr. M.T.A. van Thoor	
Instructor	Dr. R.J. Rutte	
Contact Hours / Week x/x/x/x	10 hours per quarter	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	Research writing:	
	<p>The student:</p> <ul style="list-style-type: none"> - Demonstrates a general historical understanding of the architecture profession and the role of the architect in society. - Can apply broad knowledge of the history and theory of architecture and related art forms and the humanities, as well as of the social and cultural developments relevant to architectural design. - Has developed appropriate academic writing skills. For TU Delft BSc graduates, a finished AC3 paper should have provided them with skills in planning and developing a research project, critical and responsible use of sources, and logical argumentation. These skills will be applied and expanded during this course. <p>Language skills:</p> <ul style="list-style-type: none"> - The student has appropriate English language skills. <p>If in doubt, the student should consult the OpenSourceware made available through the following links:</p> <p>https://learn.saylor.org/course/view.php?id=42</p> <p>https://learn.saylor.org/course/view.php?id=43</p> <p>These links lead to the English courses offered for free to all by the online Saylor Academy.</p> <p>Please Note: Any issues regarding research skills or language capacities will have to be addressed before the start of this course, and will require serious commitment by the student. The language courses are extensive and the student will not be able to combine them with the normal thesis workload during the semester.</p>	
Course Contents	<p>The history thesis (geschiedeniscriptie) is a required independent research project in the Master 2. It may deal with architecture, urbanism, the visual arts, design and photography, film or literature. It provides students the opportunity to hone their research skills on a historical topic. If the focus is on architecture, the research can also be of a typological kind, for example on a particular type of building, preferably not through the centuries but concentrating on a particular period or aspect. If urbanism is the subject matter, the themes may vary from the regional to the neighborhood scale, design and decision making processes, the role of politics, theories (ranging from functionalism to morphological approaches, from programmatic aspects to ideas about the creative classes and gentrification). It may also be a topographical / territorial topic, where appropriate in combination with other aspects. Finally it can regard also the investigation of an abstract topic: rhythm, scale, theory of proportions, ornamentation, eclecticism and monumentality, etc. in which an historical point of view is dominant.</p> <p>Using mixed methods from archival research and oral history to close reading of visual and textual analysis students critically examine a topic of their own choosing, producing a substantial research paper based on a clear historical perspective. This analytical and conceptual experience forms an important complement to the design&#8208;based education of the master in architecture. Writing a history thesis offers students a unique opportunity to pursue a research on a specific topic and requires students to work independently. Building on historical knowledge and research skills gained in introductory and advanced courses, students focus on primary materials and pursue an original question. They develop a complex argument and grapple with multiple data sets and interpretations. Collective and individual meetings with tutors provide a framework for the production of an original, well&#8208;written essay of about 9000 words. Students need to be familiar with library catalogues and search engines. The essays are required to demonstrate superior and consistent understanding of scientific writing (i.e. footnotes, bibliography, front and back matter). topics have to be approved by the supervisor who has to be a member of the Chair History of Architecture and Urban Planning. The topic has to be discussed with the supervisor prior to commencing. Sometimes teachers will offer a workshop.(See Blackboard).</p>	
Study Goals	<p>Learning objectives</p> <p>After completion of the course the student:</p> <ul style="list-style-type: none"> - Exhibits in depth knowledge regarding a specific field of study within architecture, urbanism, art, and or media. - Is able to plan and develop a scientific research project. - Is able to develop a critical and logical argumentation from a scientific research question based on primary sources. - Is able to evaluate, interpret and make proper reference to available sources. - Is able to build on existing knowledge and develop new knowledge. 	
Education Method	<p>Thesis supervision: 8 hours</p> <p>Independent study: 158 hours (a day in the week has been reserved for working on the thesis)</p>	
Literature and Study Materials	Blackboard	
Assessment	Thesis (For more information - length, references, use of literature and other sources - see blackboard).	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Quarter 1 and quarter 3	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR2AT030	Architecture Theory Thesis	6
Responsible Instructor	Dr.ir. H. Sohn	
Course Coordinator	Dr.ir. H. Sohn	
Instructor	Dr. S.A. Read	
Instructor	Dr.ir. A. Radman	
Instructor	Dr.ir. H. Sohn	
Instructor	Dr.ir. S. Kousoulas	
Contact Hours / Week	14 hours per quarter	
x/x/x/x		
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Required for	As per MSc2 Architecture program requirements.	
Expected prior knowledge	Students are expected to have developed a specific interest in Architecture Theory, which includes previous reading and some research in this field. Previous writing on theoretically driven topics is highly recommended.	
Summary	The Architecture Theory Thesis course offers students the possibility to explore and engage the rich conceptual and theoretical dimensions of architecture through the development of theoretical arguments and intensive research on a topic of their own choice. A free thematic allows students to conduct individual, independent research on issues and concerns that matter to them, thus offering them the opportunity of deepening their knowledge and expertise on topics which are close to their interests and passions. The focus in all cases, however, will be placed on developing the theoretical aspects of these topics.	
Course Contents	The Architecture Theory Thesis course is designed to guide participating students through the different stages of academic research and writing, aiding them in the identification of the theoretical dimensions and frameworks of their selected research topic and 'problématique', offering them relevant and timely feedback and support on their progress throughout the term. The tutors involved in this course assist students in the formulation of sound problem statements, research questions and argumentation lines towards the production of qualitative theoretical Masters' Theses.	
Study Goals	Although students are required to bring their own research passions and topics of interest to the course, we encourage students to orient these topics within two general domains or areas of specialization: 1. Architecture and political economy: Dealing primarily with research on the systemic and scalar complexities of (power) relations, forces, flows and networks, focusing primarily on their impact on -and relationship to- the (built) environment. Further angles include research on geo-politics, bio-politics and contemporary political-economy through critical and speculative investigations on the spatial, social and material transformations and consequences that these unleash across multiple scales, levels and domains. Possible themes, topics and approaches are: critical/speculative approaches to contemporary urbanisation; territorial & material flows: refuge & migration; metabolic/planetary urbanism; socio-material and spatial practices: resistance, subversion, transgression, social movements; etc. Key thinkers: David Harvey, Neil Smith, Peter Marcuse, Neil Brenner, Henri Lefebvre, Erik Swyngedouw, Andy Merrifield, Matthew Gandy, Manuel Castells, Saskia Sassen, Michel Foucault, Slavoj Zizek, Loïc Wacquant, among many others. 2. Architecture and libidinal economy: Research topics dealing primarily with issues related to matter and image, and the means and techniques of production in architecture. Mainly focused on pluralist approaches and speculative theory methodologies, and philosophical inquiries. Themes include the social effects and human affects of technological developments on the mode and means of conceiving, developing and producing cultural objects, artifacts and/or architecture. In other words, research on the material and immaterial processes and productions of things and images and their relation to experience, perception and cognition. Key words or concepts: technology, media, materialism/new-materialism, radical empiricism, speculative realism, ecological thinking, affordance, biopower/noopower, affect theory, complexity theory, geometry, space, time, memory, perception & experience of space. Key thinkers: Gilles Deleuze, Felix Guattari, James J. Gibson, Brian Massumi, Manuel DeLanda, Katherine Hayles, Henri Bergson, Martin Heidegger, Bruno Latour, Katherine Malabou, Jane Bennett, Karad Barad, Rosi Braidotti, Stanford Kwinter, among many others.	
Education Method	Upon completion of this theory course the participants will: have a solid base of knowledge on recent literature in the humanities and the social sciences and their relation to architecture practice and theorization. the appropriate knowledge of the theory of architecture and related art forms as well as of the social and cultural streams of relevance for architectural design. have developed in-depth knowledge regarding the specific field of study relating to architecture, urbanism, art, and/or media. have acquired knowledge and practice on academic research and writing skills, and will be able to apply these in theoretical argumentation and the formation of discourse. have developed a consistent and cohesive research methodology by distinguishing between a problem statement, an argumentation paper and fully developed research paper will have acquired understanding of the societal, cultural, technological and ethical dimensions and implications of conducting research on architecture	
Education Method	The Architecture Theory Thesis course is based primarily on independent self-study. It nevertheless offers students sufficient and qualitative contact-time at the early stages through the Introduction Lecture and two group meetings in which students are encouraged to introduce and discuss their topics and theoretical frameworks with their peers and tutors. The exchange of peer-reviews and feedback at this stage offers students a solid point of departure. After the group meetings in the beginning of each term, students develop their work independently. The progress is checked and discussed at regular intervals, guidance is offered through written feedback from the tutors, followed by individual consultation moments, when students can discuss their work with tutors in person. Since this course is based on a self-study format, feedback and guidance are offered on the progress made by the students, who take full ownership of their work. Tutors assist, encourage and advise students in their research and writing, and accompany them throughout the development of their Theses within one semester. Preparatory Phase: Self-study	

Formulation of Abstract

Introductory Phase:

Contact-time

Introduction Lecture: course introduction

Group meetings (2): tutor-led seminar-type discussions and peer-reviews

Problem Statement & Research Questions

Preliminary Reading List

Research-Writing Phase:

Self-study periods

First & Second Drafts

Feedback & Consultations

Final Thesis

For more information please contact the course coordinator.

Course Relations

This course is a required choice-course for MSc1/2 curriculum that awards 6 ECTS upon successful completion.

Accreditation is required for P2 registration, hence we urge students to complete this course prior to MSc3 enrolment!

This course is highly compatible with the Architecture Theory Design Studio Agential Materialisms (AR2AT020) offered only in Spring terms Q4. Students wishing to follow both courses in one term are asked to enrol in the assigned period Q1/3 and Q4.

For questions please contact the course coordinator.

Literature and Study Materials

Part of the objectives of this course is for students to learn how to build a detailed and relevant reading list and research bibliography based on their individual thesis topic. Hence, students will largely define their consulted first and secondary sources.

Tutors will recommend relevant readings and sources during the feedback phases of the course, and upon request by students.

Prerequisites

As per MSc2 Architecture program requirements.

Assessment

This course will be assessed via a series of deliverable assignments:

Problem Statement

First and Second Progress Drafts

Final Thesis

For evaluation criteria and rubrics please consult the course information on Brightspace or contact the course coordinator.

Enrolment / Application

This course has limited enrolment and special requirements!

All interested students are requested to submit a tentative thematic research proposal (motivational abstract) to the Architecture Theory chair in order to determine the theoretical viability of the proposal in advance.

Research proposals should be uploaded on Brightspace and sent via email to the AT chair office, by the announced deadline. Students will receive an email after registration to the course. The abstract deadline will always be prior to the beginning of the course.

A concept form for the tentative thematic research proposal and further information are available upon request.

Send us an email to: AT-MS-C-BK@tudelft.nl

Note: The submission of a proposal does not guarantee acceptance into this course. Proposals that are not theoretical or that lean on clearly historical methods, will not be selected, and the students will be informed prior to the beginning of the course.

Note: Due to the seminar structure of this course students must be able to attend the introductory information lecture, and the group meetings held in the first quarter of the semester.

Students with course scheduling conflicts should not sign up for this course.

This course is not open for students following a study abroad semester.

Special Information

The maximum marking period is 10 working days from the final deadline. Marks will be registered in advance of the following academic term.

This course is equivalent to the History Scriptie. It is mandatory and awards 6 ECTS upon completion.

This course has limited enrolment, and is open to students who submit a tentative thematic research proposal with clear theoretical scope.

This course requires attendance to lectures, group meetings and consultations. Thus, students with schedule conflicts or study abroad plans are not eligible for this course.

Period of Education

Full semesters (Q1-2 & Q3-4)

Minimum aantal deelnemers 30

Maximum aantal deelnemers 75

Year
Organization
Education

2018/2019
Architecture
Master Architecture, Urbanism & Building Sciences

21 ECTS Electives

Introduction 1

The Master 2 program of Architecture consists of a total of 30 credits, of which 21 credits compulsory and 9 credits free elective.

Compulsory (total of 21 credits):

- History Thesis (AR2A010) or the Theory Thesis (AR2DSD820) of 6 credits
- The Delft Lectures on Architectural Sustainability of 3 credits
- An approved Master 2 Architecture design project (12 credits) (see list in studyguide)

Elective (total of 9 credits):

- free electives as to be found in the studyguide

There are 3 possibilities for doing the Architecture Master 2 design project:

- 1 - the Master 2 Architecture design project can be an Architecture Master 1 design project (that you have not followed yet), that you attend as an Master 2 design project (12 credits)
- 2 - a design project (12 credits) from the 'MSc 2 design project list', either a semester project or a quarter project (quarter 2 or quarter 4)
- 3 - it is also possible to participate in an (international) program of another university. For this please contact 'International Office' and Students Affairs (O&S)

The courses in this section are agreed on by the faculty Director of Education and the Master coordinator of Architecture as Architecture design projects suitable for Master 2.

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

MSc 2 Design Projects

AR0026	MEGA	12
Responsible Instructor	Dr. M. Turrin	
Responsible Instructor	Prof.ir. R. Nijssse	
Course Coordinator	Dr. M. Turrin	
Contact Hours / Week	93 hours per quarter	
x/x/x/x		
Education Period	4	
Start Education	4	
Exam Period	none	
Course Language	English	
Expected prior knowledge	Each student is expected to have knowledge about the disciplines to perform in the course. The level of the knowledge should be at least BSc.	
Summary	<p>MEGA is a collaborative integral multi-disciplinary design of a special big and/or tall building. This could be a multifunctional skyscraper or a multifunctional building with a large span, such as a stadium, a sports facility, a museum, an airport, train station or transport hub.</p> <p>The course targets master students in Architecture, Real Estate & Housing, Building Technology and Civil Engineering; and it is open to non-TU Delft students, conforming with TU Delft regulations. It can be chosen by Building Technology students in MSc2 (choice between EXTREME AR2AE010 and MEGA AR0026).</p> <p>Students work in teams. The design team of 4 to 7 students is responsible for delivering an integrated design as a multidisciplinary team; while each student is responsible for one discipline.</p> <p>Disciplines involved are: architecture, structural design, climate design, façade design, design/construction management and computational design/BIM. Sustainability runs transversally across these disciplines.</p> <p>The design process occurs in a collaborative digital design environment, supporting the workflow across the different disciplines. The collaborative digital design requires an integrated 3D approach with BIM (Building Information Modelling), performance analysis, and file to production processes.</p> <p>The workshop is very realistic and closely matches the design process of large international projects in the competition phase; it is a very good preparation and experience builder for your future career. It is highly appreciated by future employers.</p> <p>The course is supported by external international design/engineering offices. With them, the location of the project will be chosen and the brief of the design assignment will be developed. As examples from recent years, support was given by Arup and UNStudio, by ABT and Neutelings Riedijk Architecten. Examples of past collaborations include also Municipalities and Provinces, such as the City of Rotterdam, Almere and Den Haag, and the Province of Friesland.</p>	
Course Contents	<p>Disciplines:</p> <p>The team is organized on disciplines:</p> <ul style="list-style-type: none"> -Architectural Design -Structural Design -Climate Design and building services -Façade Design -Project and construction management -Computational Design <p>The disciplines are divided amongst the team members; each member is responsible for the contribution and integration of these aspects in the collective design. Students are encouraged to match their role in the team with the specialization they follow in the Master track.</p> <p>Phases:</p> <p>The course is structured in 3 phases:</p> <ul style="list-style-type: none"> -Lectures; excursion; intensive learning -Sketch design of 2-3 options; presentation of options; choice of one option -Preliminary design of the chosen option; final presentation <p>The first phase includes lectures by professors, external experts and architectural/engineering firms. During the excursion, the project site is visited. Intensive sessions allow studying and practicing group dynamics, collaborative work, computational design.</p> <p>The second phase focuses on the design of multiple options. The daily design activities are facilitated by tutors who are expert in the disciplines. Each discipline has a weekly time for individual consults. During a presentation, one design option is chosen for further development.</p> <p>The mid-term presentation is facilitated by external experts. Feedback by them and tutors inform the design and decision-making. Following, the external experts give a (public) lecture.</p> <p>After the mid-term presentation, the design option is detailed with the team, leading to the end presentation. The end presentation is an important event with external experts assessing the designs. The design is summarised in reports about each discipline.</p> <p>Site:</p> <p>The assignment has an actual site where the building is planned. Past examples are in Amsterdam, Rotterdam, London, Brussels, Guangzhou.</p> <p>Objectives:</p> <p>Collaborative design</p> <ul style="list-style-type: none"> -Working together with different disciplines (different goals and backgrounds) -Realistic design environment <p>Sustainable design</p> <ul style="list-style-type: none"> -Definition of sustainability for project -Contribution of all disciplines to holistic sustainable design -Development of low/zero/plus energy design <p>Computational Design</p> <ul style="list-style-type: none"> -Collaborative digital workflow across disciplines / BIM 	

- Parametric design strategies/methods
- Performance analysis with simulation tools
- Feedback loops between numeric assessments and geometric modelling
- Digital interaction between design, engineering, analysis, manufacturing and construction

Architectural Design

- Interaction architecture/masterplan/environmental context
- Development of architectural design concepts
- Integration of structural, façade, climate concepts into architectural design
- Integration of sustainability and construction into architectural design
- Development of preliminary design

Structural Design

- Development of structural concepts
- Development of concept design
- Evaluation of different structural systems in relation to architectural design
- Integration with architecture, façade, climate design
- Dimensioning of structural elements
- Development of preliminary design

Climate design

- Developments of climate and building services concept
- Development of conceptual design
- Evaluation of different climate and building services systems in relation to architectural design
- Integration with architecture, structure, façade
- Dimensioning of HVAC installations
- Development of preliminary design

Façade design

- Development of façade concepts
- Developments of conceptual design
- Evaluation of different façade systems in relation to architectural and climate design
- Integration with architecture, structure, building services

Project and construction management

- Control of objectives, tasks, deliverables
- Facilitation of the group process
- Prediction of income and building costs; optimisation
- Development of site management and logistics
- Development of construction methods/planning

Study Goals

The student is able to design a coherent, significant, elaborated, correct and innovative design - on mainline and on aspects on MSC 2 level.

Specified for this course:

- After successful completion of the course, the student will be able to:
- work in an interdisciplinary design process;
 - understand and apply discipline-related knowledge in projects for big or tall buildings.
 - develop design strategies to achieve high building performances;
 - integrate numeric analysis and simulations to address design choices.

Education Method

In this course, the education methods are:

- Lectures by professors and specialists
- Collaborative working sessions with other students
- Exposure to external architectural practice and external experts
- Consults with tutors
- Making presentation and receiving/integrating feedback

Special is the involvement of external practitioners and external experts linking this course to practice.

For this course several multidisciplinary teams of students are formed, which are each responsible for one integral design. Each student has a different role in the design team and is tutored by instructors specialized in her/his discipline. When possible, students take roles according to their specialization during the Master studies.

Apart from focussing on his/her own discipline, the aim for each team-member is to achieve the best integral design paying special attention to collaborative design, sustainable design and computational design.

Feedback is received during the mid-term and final presentation from the external experts and tutors.

Literature and Study Materials

More specific literature is provided at the start of the course. The literature below provides an indication on relevant general content.

Tall Buildings

- Kloft, E., Eisele, J., (Ed), (2003) High-Rise Manual, Hardcover
- Ng, E. (Ed.). (2010) Designing high-density cities for social and environmental sustainability. London, Earthscan.
- Ali MM, Moon K. (2007) Structural developments in tall buildings: currents trends and future prospects. Architectural Science Review 50(3): 205223.
- Baker WF, Korista DS, Novak LC. (2008) Engineering the worlds tallest Burj Dubai., In The CTBUH 8th World Congress Tall & Green: Typology for a Sustainable Urban Future, Dubai; 110.
- Brown, N. C., & Mueller, C. T. (2016) Design for structural and energy performance of long span buildings using geometric multi-objective optimization. Energy and Buildings, 127, 748-761.
- Cross, P., Vesey, D., Chan, C.M., (2007) High-Rise Buildings. In Melchers, R.E., Hough, R., (Ed), Modeling complex engineering structures, ASCE.
- Stylianou, D., Charitou, R., Hesselgren, L., (2006) Computational Methods on Tall Buildings - The Bishopsgate Tower, Communicating Space(s) In proceedings of eCAADe 2006, 778-785.
- Almusharaf, Ayman M.; Mahjoub Elnimeiri (2010) A Performance-Based Design Approach for Early Tall Building Form Development, CAAD - Cities Sustainability, Proceedings of ASCAAD 2010, 39-50.
- Kimpian, J., Mason, J., Coenders, J., Jestico, D., Watts, S., (2009) Sustainably Tall: Investment, Energy, Life Cycle., In proceedings of ACADIA 2009: reForm() - Building a Better Tomorrow, 130-143.
- The Structural Design of Tall and Special Buildings, International Journal, John Wiley & Sons, Ltd
- Moon K, (2008) Sustainable structural engineering strategies for tall buildings. In: The Structural Design of Tall and Special Buildings, Special Issue: CTBUH 2nd Annual Special Edition: Tall Sustainability 17(5): 895914.
- Taranath, BS, (2011) Structural Analysis and Design of Tall Buildings: Steel and Composite Construction. Taylor & Francis.
- Taranath, BS, (1988) Structural Analysis and Design of Tall Buildings. McGraw-Hill, New York.
- Schueller, W., (1986) High-Rise Building Structures (2nd edn.) Robert E. Krieger Publication Company, USA.

Big buildings

Barnes, M., Dickson, M., (Ed.), Widespan Roof Structures, Thomas Telford, London, 2000

Hough, R., Carfrae, T., *Lightweight Long-Span Roofs*. In Melchers, R.E., Hough, R., (Ed), *Modeling complex engineering structures*, ASCE Publications, 2007

Imbert F., KathrynStutts Frost, Al Fisher, Andrew Witt, Vincent Tourre, and Benjamin Koren, (2012), *Concurrent geometric, structural and environmental design: Louvre abu dhabi*. In *Advances in Architectural Geometry*, 7790.

Kawaguchi, M., (1991) *Design problems of long span spatial structures*. *Eng. Struct.* 13, 144163.

Majowiecki, M., (2005) *Structural architecture for large roofs: concepts and realizations*. *Bautechnik*, 82(3): 147156.

Majowiecki, M. (1990) *Observations on theoretical and experimental investigations on lightweight wide span coverings*, International Association for Wind Engineering, ANIV.

Hladik, Pavel; Clive J Lewis (2010) *Singapore National Stadium Roof*, *International Journal of Architectural Computing* 8(3): 257-278

Shepherd, P., & Hudson, R. (2007) *Parametric definition of Landowne road stadium*. in: *International association of shell and spatial structures*, Venice, Italy, 2007,CD-ROM.

Hudson, R. (2008) *Frameworks for practical parametric design in architecture*. In: Pottman, H., Hofer, M. & Kilian,A. (eds), *Advances in architectural geometry*. Vienna, Austria,17-20.

Sanchez-Alvarez J, (2005) *Materializing geometry: the free-form reticulated roof structures for the new Milan Fair*. In: *Proceedings of AEC2005 Symposium*, Rotterdam, NL.

Assessment

Presentations and Reports

Assessment is twofold:

- Group assessment for integral group design based on presentations
- Individual assessment for discipline report

The students mark is a combination of the group assessment and individual assessment.

Special Information

The maximum marking period is 15 work days.

Remarks

The course is in English - spoken and written.

Period of Education

Quarter

AR0037	Studio Making	12
Responsible Instructor	Ir. H.A. van Bennekom	
Responsible Instructor	Ir. S.T. Bakker	
Course Coordinator	Ir. H.A. van Bennekom	
Education Period	3 4	
Start Education	3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	completed MSc1	
Course Contents	<p>"Studio Making" is a design studio that offers realistic design challenges, with real external partners, embedded in a series of interesting lectures and site visits. The topics and assignments will be mainly focussed on designing new ideas (based on solid research on the local needs and context) to increase and support circular processes in which demolition waste becomes an ingredient in new concrete. By doing this, the new results will therefor probably posses exiting, unexpected, new qualities and possibilities.</p> <p>TU Delft/Complex Projects is participating in an international project team of researchers, designers and builders that are seeking new applications with re-used raw materials (demolished concrete, brick and tiles). The TU Delft/Complex Projects is especially asked to participate in this international project because of its educational, research and student design qualities. "Studio Making" will be dedicated to designing new applications with recycled concrete and other raw materials, for real projects through western Europe. The sites will be visited during the course, and our designs will be discussed and evaluated with local parties and stakeholders in order to be realized.</p> <p>The Design "Studio Making" builds on the successful approach and contents of the 3ects course 'Making', in which students explore new design possibilities through hands-on experimenting and modeling with concrete, supported by lectures, site visits and design consulting.</p>	
Course Contents Continuation	<p>About 50% of primary raw materials in the EU are used in the building sector. At the same time, this building sector is also responsible for about 35% of all wastes. Within the construction and demolition wastes, components like concrete, bricks, tiles and ceramics have very high potential to be applied as recycled aggregates and sands in new types of concrete etc. However, until now, recycled materials are mostly down-cycled to be used as filling materials in infrastructure projects. Although the recycling quota in North-West Europe is more than 70%, but less than 4% is re-used for the original purpose: concrete production. To support recycles and further development of sustainable improvements, this studio will design new applications of concrete in which recycled aggregates define new qualities and possibilities</p>	
Study Goals	<p>the student:</p> <ul style="list-style-type: none"> - Has developed further skills in architectural design satisfying both aesthetic and technical / functional requirements. - During this trajectory skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology, social and human sciences. - Additionally, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and societys needs, including environmental and waste aspects. - During Master 1, 2, 3 & 4 skills are acquired by cumulation to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing. - skills are acquired to incorporate an understanding of the design process with regard to structural design, materialisation of buildings, comfort and climate control. 	
Education Method	design, tests, presentations, site visit, visiting critics	
Assessment	design and research book	
Special Information	The maximum marking period is 10 work days.	
Elective	Yes	
Tags	Challenging Design Drawing Energy & Industry Projects Prototyping Sustainability	
Period of Education	week 3.8 kick off, week 4.1-4.11 studio	
Leerstoel	CP	
Minimum aantal deelnemers	2	
Maximum aantal deelnemers	24	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR0052	Design Studio: Architecture and Urbanism Beyond Oil	12
Responsible Instructor	Prof.dr.ing. C.M. Hein	
Course Coordinator	Ir. H.A. van Bennekom	
Contact Hours / Week x/x/x/x	0/X/0/X	
Education Period	2 4	
Start Education	2 4	
Exam Period	none	
Course Language	English	
Expected prior knowledge	completed MSc1	
Course Contents	<p>An end to our petroleum-based lifestyles and the use of renewable energies will impact our cities and buildings. The Studio Architecture and Urbanism Beyond Oil argues that we have to first understand the enormous collective presence of oil in the built environment, its impact on production processes, financial flows, and associated social and cultural patterns in our everyday environment, and the long history of oils impact on our lives. Then, we can imagine the needs and spaces of the future and transform our existing landscapes, cities and buildings. The Architecture and Urbanism Beyond Oil studio starts with an investigation of how petroleum its extraction, refining, transformation, and consumption has shaped our built environment in visible and invisible ways around the world over the last 150 years. Some students have built on their history thesis exploring oil depictions in Hollywood films or evolving mental maps of oil as a foundation or design. Others have explored the historical development of sustainable architecture through the elective "Building Green." The studio identifies global landscapes of energy and oil. It maps and translates the findings into accessible visuals, with the goal to develop an architectural, urban or landscape project that address these findings and propose new uses and solutions. The studio has included analysis of the relevance of oil for the urban and architectural form of the port and city of Rotterdam. Students have imagined possible transition trajectories, notably suggesting a recuperation of the oil-dedicated spaces from the sea-side and new connections across the river. Other students have imagined the transformation of gas stations as lifestyle hubs, roads as energy generators, or floating self-sustaining cities. Design strategies developed in the studio can be applied to cities around the globe and possible research destinations including Rotterdam, Dunkerque, Philadelphia, Houston, and Curacao.</p>	
Study Goals	<p>Architectural and urban design are anchored in larger political, economic, social and cultural contexts. Students will learn how to place their design into the global context of oil as a commodity, the generator of financial flows, and as a mindset. They will do primary research on Rotterdam as a case study. They will work in groups on a chosen location and develop a project that acknowledges the larger theoretical and methodological premises of the course and that takes into account the different disciplinary backgrounds of the participating students.</p>	
	<p>The course is open to students in architecture, urbanism, real estate, heritage, architectural history, history and media studies, etc. and mirrors in its composition the nature of design practice.</p>	
Education Method	Lectures, discussions, and studio design work.	
Assessment	Grades will be based on course participation, assignments and the final project.	
Special Information	The maximum marking period is 10 work days.	
	Open for students from all Dutch institutions. External students please check: http://tinyurl.com/qam99u4	
Period of Education	Quarter	
Minimum aantal deelnemers	4	
Maximum aantal deelnemers	24	

AR0067	Architecture & Urban Design	12
Responsible Instructor	Dr.ir. M.G.A.D. Hartevelde	
Responsible Instructor	Dr.ir. R. Cavallo	
Course Coordinator	Dr.ir. M.G.A.D. Hartevelde	
Contact Hours / Week x/x/x/x	8 hours per week	
Education Period	4	
Start Education	4	
Exam Period	none	
Course Language	English	
Expected prior knowledge	Skills are acquired to incorporate an understanding of the design (process) attained with regard to architectural/urban history, theory, art and technology as well as relevant general knowledge of human sciences. Additionally, skills are acquired to incorporate an understanding of the design (process) attained with regard to the relation between buildings, public spaces and society's needs, including environmental aspects. During the trajectory of the Master 1, 2, 3 & 4 studios, the complexity of the architectural and urban design increases leading to a level fit for architectural/urban practice.	
Course Contents	<p>Interventions in the contemporary city need constantly to be grounded on sharp design approaches in order to respond adequately to the necessities of our times.</p> <p>Nowadays we meet in public atria and do shopping in malls; we move along covered walkways and go from street to street by taking shortcuts through the buildings of a city block. All kinds of buildings hybridised and became multi-functional anchors in the city serving thousands of people daily. The railway stations of today are entangled with the urban tissue, airports have become cities, conference centres and world expos temporarily change the urban composition, and museums are also leisure centres. In the recent decades, the amount and the proportion of public space within urban buildings has steadily increased, with much of it forming part of a larger interior and exterior pedestrian network. On the other hand the amount and size of public buildings within the urban context increased too, changing the way the contemporary city is constructed. However, still rarely designers approach the city as architecture or the building as urban design.</p> <p>For these reasons there is nowadays a great need of identifying the available design tools in order to plan effective future interventions in our cities. Particularly in the case of existing urban environments, design approaches require a conscious understanding of urban design as well as an adequate knowledge of changes in building typologies.</p> <p>In this design studio, architects and urban designers work together in the examination of the urban space as architectural space and the architectural space as urban space. In this experimental design project, students and staff are interested on one hand to the urban intervention in the built environment and its effect on architecture, and at the other hand to the architectural treatment of the city and its effect on urbanism.</p>	
Study Goals	<p>The student:</p> <ul style="list-style-type: none"> - understands the interrelation of architectural and urban design, to evaluate and create proposals for strategic interventions, with regard to spatial-social patterns and the culture of the city - evaluates skills in architectural and urban design to create an elaborate design proposal in typological terms related to use, ownership and meaning - creates an elaborate design proposal on the edge/overlap of both professions, satisfying formal, technical and functional requirements, including materialisation. 	
Education Method	Interactive studio work	
Assessment	Design / Research, presented in drawing form with written commentary and a model.	
Special Information	The maximum marking period is 10 work days.	
	The studio work includes an excursion to the site. Please, do not hesitate to inform with the course coordinators what this year's case studies is.	
Period of Education	Quarter 4	

AR0072	Solar Decathlon	12
Responsible Instructor	Prof.dr.ir. A.A.J.F. van den Dobbelsesteen	
Course Coordinator	Ir. P.G. Teeuw	
Contact Hours / Week x/x/x/x	8 hours per week	
Exam Period	none	
Course Language	English	
Course Contents	<p>The Solar Decathlon is a bi-annual competition of solar homes built by universities across the world. TU Delft is also participating in this competition.</p> <p>This course is connected to active involvement of students participating in the TU Delft Solar Decathlon team. This course deals with the architectural and technical design and elaboration of the TU Delft entry to the Solar Decathlon competition.</p>	
Study Goals	<p>The student is able to design a coherent, significant, elaborated, correct and innovative design - on mainline and on aspects on MSC 2 level.</p> <p>Specified for this course; the student is able to:</p> <ul style="list-style-type: none"> - collaborate in a team with other students - work on a joint design of an energy-neutral or energy-producing house - integrate various aspects of sustainability into the design of the house - elaborate on components of the design challenge, related to architectural design, structural design and engineering, envelope design and engineering, climate design and engineering, HVAC systems, electrical systems etc. 	
Education Method	Tutorials, workshops, (mid-term) presentations, reporting, exhibiting	
Assessment	The design, report and oral presentations will be assessed by different criteria. Also the group attitude and pro-activity of the student will be reviewed.	
Period of Education	Semester	

AR0076	The New Town: Design Studio Africa		12
Responsible Instructor	M.J. Emmerik		
Responsible Instructor	Prof.dr. W.A.J. Vanstiphout		
Course Coordinator	M.J. Emmerik		
Instructor	Prof.dr. W.A.J. Vanstiphout		
Instructor	M.J. Emmerik		
Education Period	4		
Start Education	4		
Exam Period	none		
Course Language	English		
Summary	<p>This Research and Design studio is focused on one of the fastest urbanizing regions in the world: the African west coast between Cote d'Ivoire and Nigeria where more than a dozen agglomerations with millions of inhabitants are stretched over an area of approximately 500 miles. This creates an urban area with a potential coherence and accumulative value comparable to regions such as the East Coast of the United States or the Pearl River Delta in China.</p> <p>The African 500 mile city however, in contrast to its American and Chinese stretches across five countries, with different political systems, economies working at different speeds and complex relationships with each other. On an urban level, they are connected by a dynamic of urbanization due to immigration and economic growth which brings huge pressures on the livability and ecological sustainability of the area. Conversely, the urbanization process itself is hugely pressurized by the effects of climate change, making linear city between Accra and Lagos one of the areas most at risk both from the rising of the sea level, and the swelling of rivers such as the Volta and the Niger.</p> <p>But there is more holding this region together. This part of West Africa has a very old, precolonial, precolonial history of urban civilization and states, with great examples in the Dahomey and Benin kingdoms. This shared history was however hacked into pieces during colonial times, that also brought with them a series of trading posts later developing into the metropolises of today. There is, in other words a large historical heritage to be found on the ground as a cultural backbone to the 500 Mile City.</p> <p>In this research and design studio students develop Urban and Architectural design projects based on extensive fieldwork in West Africa, exploring this area through the perspective of modern new town planning and try to conceptualize and explain these conurbation as part of the present global urbanization. How can we understand these large urban areas as a physical manifestation of its various backgrounds? How can we use the design models used by architects and urban planners for new town planning in the past to deal with this rapid urban growth? What are the contemporary planning issues of the new cities of the 21st century? Can the developed and developing nations learn from each other in the planning and development of new towns? And what effects does this have on the daily lives and the economies of the regions involved?</p> <p>This course, in combination with The New Town: Lecture series (AR0023) is open for students from the master tracks in Architecture (MSc2) and Urbanism (Q4 elective). It is organized by the chair of Design as Politics in collaboration with the International New Towns Institute.</p>		
Course Contents	<p>In this research and design studio you will develop Urban and Architectural design projects based on extensive fieldwork in West Africa. We will concentrate on a massive transnational conurbation that is forming between Abidjan (Ivory Coast) and Lagos (Nigeria). We will explore this area through the perspective of modern new town planning and try to conceptualize and explain these conurbation as part of the present global urbanization.</p> <p>The aim of the studio is to understand the development of this unplanned megacity, its effects on the daily life and local economies, and to explore the role that design and new town planning might play on many different scales in this urban situation where there is no strong role for a central state.</p>		
Study Goals	<p>After successful completion of this course you are able to:</p> <ul style="list-style-type: none"> Analyze the physical manifestation of rapidly urbanizing areas in relation to the social-economic and political context in which they emerge and to transform your findings into a design brief. Develop strategic architectural or urban interventions that guide or facilitate rapid urban growth. Reflect on western planning principles and their application to the African context and visa versa. 		
Education Method	Design tutoring / Studio sessions / Presentations / Field research		
Course Relations	One meeting each week, consisting of design tutoring and collective pin-up sessions combined with extensive field research.		
Course Relations	This studio is complemented by a theoretical introduction to New Town planning (AR0033). Enrollment to this lecture series is compulsory for students participating in this studio.		
Assessment	Assessment takes place based on a design project, your attendance and participation during the field research and a final presentation. More information will follow at the beginning of the course.		
Remarks	<p>This studio is organized by the chair of Design as Politics in collaboration with the International New Town Institute, and a number of international global parties such as the Dutch ministry for foreign affairs, UN Habitat and local universities and development agencies. For more information see: www.designaspolitics.nl and www.newtowninstitute.org</p> <p>Participating students are required to cover additional traveling expenses for a field trip to Africa (around 1300,- for travel and accommodation.)</p>		
Period of Education	This course starts in the second semester (spring 2018)		

AR0077	The Why Factory MSc2 Design Studio	12
Responsible Instructor	Prof.ir. W.G.M. Maas	
Course Coordinator	J. Arpa Fernandez	
Responsible for assignments	S. Gargaretas	
Contact Hours / Week x/x/x/x	0/0/0/X	
Education Period	4	
Start Education	4	
Exam Period	none	
Course Language	English	
Course Contents	<p>This course is a MSc2 studio, and is organized as a think tank. Studios at The Why Factory are content-driven design and research studios with a practical and theoretical scope. MSc2 studios are research labs and platforms that aim to analyse, theorize and construct future cities. They conduct a variety of investigations within the given world, and produce future scenarios beyond it: from universal to specific and global to local.</p> <p>MSc2 studios start with a specific brief and a statement on the future of urban life. Based on the brief, future scenarios will be developed leading to visionary, city-related designs.</p> <p>Students develop their specific approach to the brief and define the necessary scientific research. Calculations, simulations or modelling to support the studio work are elaborated in a parallel seminar: the MSc2 Future Models I seminar.</p> <p>The results of the research lead to a design project with consequent logic, convincing argumentation and illustrative and fantastic visuals.</p>	
Study Goals	<p>Upon completion of the Master 1, 2, 3 & 4 studio trajectory, the student:</p> <ul style="list-style-type: none"> - Has developed the necessary skills in architectural design that satisfy programmatic, aesthetic and technical requirements. - During the Masters trajectory, the complexity of the architectural design increases, leading to the level required for professional practice. - During this period, skills are acquired to increasingly incorporate an understanding of design processes, architectural history and theory, art, technology and human sciences. - Additionally, skills are acquired to incorporate into design an understanding of the relation between territory, buildings, spaces and societies needs, including environmental aspects. - During Master 1, 2, 3 & 4, skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing. - Together with the building technology training, during Master 1, 2, 3 & 4 skills are acquired to incorporate an understanding of the design process with regard to structural design, materialisation of buildings, comfort and climate control. 	
Education Method	Atelier: 150 hours Self study: 270 hours	
Assessment	Presentation	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Quarter	
Maximum aantal deelnemers	30	

AR0086	Infrastructure and Environment Design	12
Responsible Instructor	Dr. F.L. Hooimeijer	
Responsible Instructor	Dr.ir. T. Kuzniecowa Bacchin	
Course Coordinator	Dr. F.L. Hooimeijer	
Instructor	Dr.ir. T. Kuzniecowa Bacchin	
Instructor	Dr. F.L. Hooimeijer	
Contact Hours / Week x/x/x/x	0/0/0/X	
Education Period	4	
Start Education	4	
Exam Period	none	
Course Language	English	
Course Contents	<p>With urgent urban challenges such as climate adaptation, energy transition, and continued urbanisation, the urgency of integrating planning and design with urban engineering increases. The implementation of new technological interventions and the utilisation of the natural system is hampered by the lack of an integrated approach incorporating urban planning and design decisions. Meanwhile, urban and economic growth increasingly competes for infrastructure and environment, affecting the success or failure of the daily operating systems of cities and thereby urban competitiveness. The challenge is to fundamentally re-think the urban landscape in light of new technologies. The question is how to renew existing cities by integrating the parameters of the natural system, as well as technological innovations directly into urban development opportunities arising from spatial planning and design.</p> <p>In order to stimulate and design the synergy between design and engineering this course offers the possibility for architects, urban designers and landscape architects to get well acquainted with the concepts and language of civil engineers on the subject of infrastructure and environment; at the same time the civil engineers will get acquainted with the world and language of designers.</p>	
Study Goals	<p>In order to create an emerging path where synergy between the disciplines makes sure that technology becomes embedded in the design process, this course offers possibilities for both urban designers and civil engineers to get well acquainted with each others discipline. This is achieved by collaborating with the course Technology and Practice Water Management in Urban Areas at (CT5510) that elaborates on the technology of building site preparation and will show the collaborative worlds of soil and water.</p> <p>The goal of this course is that students will be able to:</p> <ul style="list-style-type: none"> Formulate their design perspective that is based in a conceptual or theoretical framework. Identify and discuss the synergy between natural conditions and technological potential and possibilities in urban environments. Analyse and design infrastructures on a regional scale and on the scale of the section. Identify and discuss the tension between public and private development in infrastructures and environments. Apply methods concerning the appraisal of sustainable urban environments and infrastructure. Demonstrate in a design the connection between the natural system and technical possibilities in urban environments. Be able to translate analyses into design and the design into a formal plan. Perform inter-disciplinary working. 	
Education Method	<p>Readings in the field of knowledge brokerage, technical entrepreneurs, landscape ecology, sustainability and urban theory for a better understanding and theoretical framing of the individual project.</p> <p>Exercises in building a theoretical or conceptual framework and translating analyses into design.</p> <p>Interdisciplinary learning by taking class with civil engineers and policy students in which understanding can be created for each others knowledge and skills, where fences between the knowledge fields can be broken down, where contacts can be made for later in professional careers. The Urban Water Management course starts in Q3 with 8 lectures of which the compulsory ones are indicated in the schedule, the others can be viewed on colleggerama. In Q 4 there is an assignment, excursion and workshop with the urban water management students.</p> <p>Workshops with professionals and with students of technical background to understand differences in language and concepts and learn to apply the technical information to the spatial context.</p> <p>Individual or group project as elaboration of the workshops.</p> <p>Project in practice: research assignment with a partner in practice to answer to the goals of this course. It needs to be with a company or institute, municipal department with a technical focus. With them you need to arrange that you work on a certain research or design project that can be done in 10 weeks, minus the time you need for the other activities in this course and your other electives. You can also take the summer months to extend the internship. The result is a report where, taking in consideration the learning goals for this course, a reflection is done on the project and/or way of working.</p>	
Literature and Study Materials	<p>Literature list is given with the course outline. It covers theory on sustainability, knowledge brokerage, eco system services, urban ecology, infrastructure and urban design.</p>	
Assessment	<p>The course results in an individual project or a project in practice. The content of individual project is:</p> <ol style="list-style-type: none"> 1) Use of theory to frame your research and design perspective. 2) Research and analyses of technical data/infrastructure of your site resulting in an environmental and infrastructure potential map. 3) Research and analyses of the surface of your site, resulting in a surface potential map. 4) Synthesis between 2 and 3 and together with 1 resulting in a (spatial) concept. 5) Concept translated in a performance based urban design that will be translated into a formal plan. 	
Remarks	<p>This course is combined with: Technology and practice Water management in urban areas CT5510 4ects</p> <p>Summary: master course on design and planning of the urban water management system. Water fluxes and relevant processes in water and soil. Storm water, surface water and groundwater drainage design (quantity and quality) in interrelation with subsidence and based on functional demands and standards. Storm water infiltration and building site preparation. Water wise spatial planning and urbanism. Water management policy development.</p> <p>Responsible Professor: Nick van der Giesen Course Coordinator: Frans van der Ven</p> <p>This course includes the course AR0093 Infrastructure and Environment Method Module. It is not possible to take both this course and AR0093.</p>	
Period of Education	Quarter	

AR0094	Bucky Lab A	12
Responsible Instructor	Dr.ing. M. Bilow	
Course Coordinator	Dr.ing. M. Bilow	
Education Period	3 4	
Start Education	3	
Exam Period	none	
Course Language	English	
Course Contents	<p>The focus of the semester is an innovative building construction or facade design for an architectural related building, this may be a part of a building, a pavillion or a facade. The task is a building component in which all the important technical and architectural aspects of a building are integrated in. The first three weeks students individually research and analyse the assignment in order to come up with an innovative concept. The remaining weeks of the semester are dedicated to a design by research process in which all the main aspects of the design, from applied mechanics, material propertie to production techniques are researched ending in an integrated final design. Computer modeling, virtual and full scale material prototyping are part of the process.</p> <p>This course is a shorter version of the already known bucky lab, so expect the same fun but in a smaller package ! We try to focus more on the construction and will reduce the building physics and structural engineering part.</p>	
Study Goals	<p>The student is able to design a coherent, significant, elaborated, correct and innovative design - on mainline and on aspects on MSC 2 level.</p> <p>Specified for this course: the student</p> <ul style="list-style-type: none"> - has an understanding of the relation between design, society, realisation, materialisation and functioning. - is able to design and evaluate building components based on their function and performance. 	
Education Method	Design consultation and computer modeling. Design by prototyping	
Assessment	Individual report of innovative concept and reports in team of two students of design by research process from concept to final design, main focus the level of integration of all the researched aspects.	
Special Information	The maximum marking period is 10 work days.	
Period of Education	summer semester starting in week 6	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR0096	EXTREME technology	12
Responsible Instructor	Prof.dr.ing. U. Knaack	
Course Coordinator	Ir. R. Schroën	
Contact Hours / Week	12 hours per week x/x/x/x	
Education Period	4	
Start Education	4	
Exam Period	none	
Course Language	English	
Course Contents	<p>The project is about building in a extreme situation, in respect to climate, location and function. Essence is the interaction between the extreme circumstances, the technical solutions, and the architecture. Extreme circumstances do request technical solutions which will be the starting point for the design development. The designer has to direct the 'engineer questions and answers', towards the articulation of the form which is based on integration of aesthetic and technology.</p> <p>"Die Architectur des 21 Jahrhunderts hat ihre Unschuld verloren, Gebaude müssen etwas leisten" Stefan Behnisch.</p> <p>In the end the student is able to understand technical solutions, to reflect on them, to applicate them and to transform them. And the student is able to design a coherent design result.</p>	
Study Goals	<p>The student is able to design a coherent, significant, elaborated, correct and innovative design - on mainline and on aspects on MSC 2 level.</p> <p>Specified for this course:</p> <p>In the end the student is able to design a healthy coherent building in extreme conditions with a focus on technical solutions: the student is able to apply, reflect and transform principles concerning climate, construction and structure.</p>	
Education Method	Design project	
Assessment	The design result including the aspects structure, climate and envelope.	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR0098	Sustainability project design and elaboration	12
Responsible Instructor	Prof.ir. M.F. Asselbergs	
Responsible Instructor	Prof.dr.ir. A.A.J.F. van den Dobbelsteen	
Course Coordinator	Ir. P.G. Teeuw	
Course Language	English	
Course Contents	This course is connected to active involvement of students participating in design teams related to practice. This course deals with the architectural and technical design and elaboration.	
Study Goals	The student is able to - collaborate in a team with other students - work on a joint design of a specific (building) design project - integrate various aspects of sustainability into the design of the project - elaborate on components of the design challenge, related to architectural design, structural design en engineering, envelope design and engineering, climate design and engineering, etc.	
Education Method	Tutorials, workshops, (mid-term) presentations, reporting, exhibiting (if applicable)	
Assessment	Portfolio of the design, report and oral presentations will be assessed by different criteria. Also the group attitude and pro-activity of the student will be reviewed. All depending on the specific project .	
Period of Education	Varies.	

AR0149	ON SITE, Landscape architectonic explorations	15
Responsible Instructor	Dr.ir. I. Bobbink	
Course Coordinator	Dr.ir. I. Bobbink	
Education Period	4	
Start Education	4	
Exam Period	none	
Course Language	English	
Required for	students need to be master students	
Expected prior knowledge	design skills	
Summary	Please check the presentations on the Q4-free choice projects for more specific information about the site and the exact theme - this differs every year. In the course, we will study on how to define identity and how to transform ordinary spaces into specific places. We will experiment with different methods and tools. Depending on the theme we might operate as one group.	
Course Contents	In this course, you will learn how to analyse, interpret the spatial identity of a site and translate it into a landscape architectonic design. The scale of the assignment can differ from a garden to an (urban)landscape. Landscapes and cities with a strong identity are highly valued by people. Identity, heritage, continuity and transformation are important notions of todays design practise. In the course, we will study on how to define identity and how to transform ordinary spaces into specific places. Through fieldwork, the site will be studied across experimental analysis methods and techniques, also borrowed from other disciplines, like social sciences and art. The experimental analysis deals with questions related to a site exploration and notation and how to construct a design concept. It depicts the subjective, dynamic and intangible characteristics of the place such as: processes, cultural activities, memories, stories, experiences, rituals by for examples sensorial perception, tracing narratives, investigating historic sources, mapping spaces in various ways and working with experimental photography, etc. As a frame, the course offers an interdisciplinary debate on the theory of place making which feeds the design experiment. These design experiments can become models, films or real constructions in the public realm. The course will involve third parties, for example ongoing research in the section of landscape architecture, assignment from practise or can be part of an event like the Oerol festival on Terschelling etc.	
Study Goals	- to acquire knowledge of the physical form of a specific landscape; - to acquire and use theoretical knowledge on place making; - to study, visualise and edit the topography and spatial identity of a landscape (experimental analyses); - to build a relationship among landscape architecture and other fields of science like geology, archaeology, ecology, history, anthropology, and other creative disciplines like art, architecture and urbanism; - to design a landscape architectonic space.	
Education Method	studio work (experimenting) interactieve lectures workshops fieldwork	
Assessment	oral presentation with the help of: drawings models films or real constructions in the public realm	
Period of Education	Quarter 4	
Minimum aantal deelnemers	15	
Maximum aantal deelnemers	15	

AR0225	MSc2 Studio: Urban (Re)Development Game	12
Responsible Instructor	Y. Chen	
Course Coordinator	Y. Chen	
Instructor	Prof.dr. E.M. van Bueren	
Instructor	Dr.mr. F.A.M. Hobma	
Instructor	Mr.dr. P. Jong	
Instructor	Dr. C. Maat	
Instructor	Dr.ir. M. Spaans	
Instructor	Dr.ir. P.L.M. Stouten	
Instructor	Ir. H.W. de Wolff	
Instructor	Dr.ir. R. Binnekamp	
Instructor	Dr.ir. S. Zijlstra	
Instructor	Dr.ir. L. Volker	
Instructor	Dr.ir. R.S. van der Kuij	
Instructor	Dr.ir. T.A. Daamen	
Instructor	Dr.ir. E.W.T.M. Heurkens	
Instructor	Prof.dr. P.J. Boelhouwer	
Instructor	Drs. P.W. Koppels	
Instructor	Dr.ing. G.A. van Bortel	
Instructor	Y. Chen	
Instructor	Dr.ir. E.H. Stolk	
Instructor	Dr. W.J. Verheul	
Instructor	Ir. L.G.C. Heijnders	
Instructor	Dr. I. Nase	
Contact Hours / Week x/x/x/x	0/0/0/X	
Education Period	4	
Start Education	4	
Exam Period	4	
Course Language	English	
Expected prior knowledge	Semester 1 of Master course from Faculty of Architecture and the Built Environment	
Summary	The course is meant for master students from the department of Architecture and Urbanism who have not followed any economic course. During this unit course the theory and the practice of managing urban (re)development processes is explored through lectures, role-playing simulation in urban (re)development project at area scale, as well as at the portfolio and object scale. A third component is finance.	
Course Contents	<p>The unit of course aims to train students to grasp an integral approach when managing urban (re)development both at the urban area scale and at the portfolio and object scale. Through a role-playing simulation project, students will be given design assignments that drive them to (re)develop a complex urban location with both residential and non-residential elements.</p> <p>The assignment aims at drawing up a development plan for the location. The students, through this exercise, will play the roles of local authorities and private actors as well as third parties of the area and negotiate in their respect roles to reach an optimal solution. Students will conduct feasibility analysis of a particular real estate objective at the portfolio and object scale.</p> <p>This unit will equip students with sufficient skills to deal with the assignment in the simulation with a series of lectures and sessions of fieldwork, role assistance and group supervision. Students will learn about the context, goal, actors and means of realisation related to each phase of the urban area development cycle. In this process, students have to consider how to make a balance between market demand, spatial quality requirement with available means.</p>	
Study Goals	<p>The unit aims to enable students to:</p> <ul style="list-style-type: none"> - understand the changing context of global and local environment and economic, social and cultural elements which contribute to various urban problems - understand the context, content, players and means of implementation during the cyclic phases of urban area development; identify positions, objectives and means as well as strategies of involved parties in different phases - analyze the social-economical and urban context as well as the status and function the area can possibly achieve in the future - set up functional programs for the area in question; identify spatial possibilities and, the feasibility and financial consequences of investments; develop institutional and financial plans for different phases in order to manage and oversee the development design and implementation process, thereby effectively integrating the input of the various actors in the project - conduct feasibility studies of real estate portfolio strategy with involved and/or potential stakeholders and the cost-benefit analysis of a particular building block at the object level - integrate multidisciplinary knowledge through teamwork, negotiate and communicate with different parties, present project results and reflect the development process with an analytical report 	
Education Method	<p>The program of The Urban (Re)development Game comprises three parts:</p> <ul style="list-style-type: none"> - Theory: the knowledge of the theory on managing urban development is acquired through lectures and literature study - Practicum: the practice skills are acquired through role-playing in a management game, with support from role lectures, supporting literature and consultation provided by role assistance and group supervision. Students are asked to work on a master plan of a specific location and then examine its feasibility plan of a particular role at portfolio and object level. -Real estate finance: the knowledge of finance is acquired through lectures and literature study 	
Literature and Study Materials	<p>The compulsory literature for Theory is:</p> <p>Franzen, A., Hobma, F., de Jonge, H. and Wigman, G (eds) (2011) Management of Urban Development Processes: governance, design, feasibility. Amsterdam: Technpress.</p> <p>Adams, D. & S. Tiesdell (2012), Shaping Places: Urban Planning, Design and Development. London: Routledge.</p> <p>Other digital compulsory and supporting literature is available from the blackboard and is updated yearly.</p>	
Assessment	<p>The result will be determined by:</p> <ul style="list-style-type: none"> - the theory component, assessed through individual 3,5 hour exam - the practice component, assessed through the quality of design assignment, the quality of presentation performance, the quality of argument and reflection in the end report - The finance component, assessed through assignment and exam 	

Exam Hours	Theory: 3,0 hours
Special Information	The maximum marking period is 10 work days.
Period of Education	Quarter

AR0681	Heritage and Architecture Design Studio: Research and architectural design	12
Responsible Instructor	Ir. W.L.E.C. Meijers	
Responsible Instructor	Prof.ir. W. de Jonge	
Course Coordinator	Ir. W.L.E.C. Meijers	
Instructor	Ir. W.L.E.C. Meijers	
Instructor	Dr. S.A. Stroux	
Instructor	Ir. A.C. de Ridder	
Instructor	Ir. W. Willers	
Contact Hours / Week x/x/x/x	8 hours per week	
Education Period	3 4	
Start Education	3	
Exam Period	none	
Course Language	English	
Course Contents	The chair of Heritage & Design is concerned with re-designing and researching buildings of significance in cultural-historical context. In this studio the cultural, historical, societal and urban context of a built structure are analysed and interpreted in relation with architectural and technical features. Historical development, urban context, typology, materialisation, technical elaboration and related literature are the main issues in a synchronic method of analysing and re-designing. Students individually create a re-design that shows a meaningful translation of an intervention strategy into the spatial, functional, urban, material and technical design. The design choices are based in an understanding in relation to cultural value.	
Study Goals	Upon completion of the Master 2 studio the student is able to: - draw conclusions from analyses and present these in an academically substantiated and comprehensive way, - define a relevant design brief and create an architectural redesign for a building or ensemble that he/she has chosen as an etude, - apply professional knowledge and design tools related to architecture, building technology and cultural value, - focus on moral sensibility, analysis, creativity and judgement skills regarding architectural ethics - explain and reflect on meaning and design development with relevant presentational means - communicate design ideas at an advanced level through verbal presentations, visual and written media.	
Education Method	Design coaching in studio during educational weeks. The design studio features individual and group tutorials, and study specific to the design project.	
Literature and Study Materials	To be announced via the tutor and/or the coordinator and/or Brightspace.	
Assessment	Presentations will be held during the semester and a final presentation at the end of the semester. Drawings, texts, models.	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Q1 / Q2 / Q3 / Q4: semester weeks 1.6 - 2.10 / 3.6 - 4.11	
Leerstoel	Heritage & Architecture	
Maximum aantal deelnemers	45	

AR0896	Van Gezel tot Meester	21
Responsible Instructor	Ir. E.J.G.C. van Dooren	
Responsible Instructor	L.A.M. Willekens	
Course Coordinator	Ir. E.J.G.C. van Dooren	
Contact Hours / Week x/x/x/x	160 hours per semester	
Education Period	1 2	
Start Education	1	
Exam Period	none	
Course Language	Dutch	
Course Contents	Didactiek in ontwerpprojecten	
	In een stage (Bachelor eerste jaar) leer je onder supervisie het vak van ontwerpbegeleider; de ervaring en problemen die je opdoet in de stagegroep kun je terugkoppelen in de onderwijsgroep. In enkele werkcolleges wordt onderzocht hoe studenten te begeleiden in het leren ontwerpen.	
	Ontwerpvaardigheid en ontwerpproces	
	In een aantal ontwerp oefeningen wordt het ontwerpproces expliciet onderzocht. Door het ontwerpproces enkele keren te doorlopen en specifiek te bestuderen wordt inzicht verkregen in meer algemene principes tijdens het ontwerpen en de eigen, individuele inbreng; ook valkuilen kunnen zo aan het licht komen.	
	Zoals een topsporter op onderdelen en het geheel traint om tot meesterschap te komen, zo kan een ontwerper ook zijn eigen ontwerpproces trainen. Door het kanaliseren van gewoontes en het bewust worden van essentiële ontwerpmomenten kom je tot meesterschap in het ontwerpproces.	
Study Goals	De student is in staat een coherent, betekenisvol, uitgewerkt, juist en innovatief ontwerp te maken en onderzoek te doen - op hoofdlijn en in details - op Msc 2 niveau.	
	Specifiek voor deze cursus: de student	
	1. heeft inzicht in het (eigen) ontwerpproces en in het (ontwerp)docentschap	
	2. is in staat korte ontwerp opdrachten te doen en heeft de basisvaardigheden als (assistent) ontwerp docent	
	3. is in staat een kort onderzoek te doen naar het (eigen) ontwerpproces en de aspecten van het ontwerpdocentschap	
Education Method	- stage als assistent-begeleider in een eerstejaars ontwerpproject	
	- ontwerponderwijs op atelier (meerdere ontwerp opgaves)	
	- enkele werkcolleges	
	Kennis en toepassing zijn tijdens het leren met elkaar geïntegreerd. De cursus is opgebouwd uit een groot praktijk gedeelte (ontwerpen / begeleiden) met op een aantal momenten compacte input van kennis en theorie.	
	Het ontwerp onderwijs vindt in principe plaats op dinsdag en vrijdag middagen, en een aantal werkcolleges op woensdagmiddag	
	- wijzigingen in verband met de stage voorbehouden	
	De stage vindt plaats in het tweede kwartaal.	
Assessment	Didactiek stageverslag waarin opgenomen een observatie en een reflectie (9 studiepunten).	
	Ontwerpresultaten en reflectie op ontwerpproces (12 studiepunten).	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Semester	
Maximum aantal deelnemers	hangt af van beschikbare stageplaatsen	

AR2AD010	MSc2 Dwelling design studio 'Global Housing'	12
Responsible Instructor	Ir. H.A.F. Mooij	
Course Coordinator	P.S. van der Putt	
Instructor	Prof.ir. D.E. van Gameren	
Education Period	3	
Start Education	4	
Exam Period	3	
Exam Period	none	
Course Language	English	
Course Contents	The MSc 2 AR2AD010 Global Housing Studio focuses on the worldwide issue of affordable mass housing schemes. The assignment involves designing a housing project, with the aim of providing solutions that cater for the creation of socially and ecologically sustainable urban environments as an alternative to current practices of large-scale developments, public and private, based on models. Participating in the studio requires a site visit to Ahmedabad, India of approximately two weeks.	
Study Goals	<p>Learning Goals MSc 1/2 GLOBAL HOUSING</p> <p>After completion of this course the students is able to:</p> <ol style="list-style-type: none"> 1. Recognise and explain morphological and typological qualities of urban housing neighbourhoods . 2. Formulate a design strategy for affordable housing in relation to densities, multiple user groups, access & circulation, privacy & community and patterns of daily life. 3. Design and develop an urban plan for affordable housing on a proposed site. 4. Design and develop an urban housing neighbourhood accomodating the various relations of the design strategy. 5. Design and develop different dwelling types in relation to specified needs and usability. 6. Identify and explain the qualities of the proposed design in relation to project references and experience. 7. Identify appropriate building techniques and construction systems to be employed as part and parcel of the design proposal. 8. Produce meaningful visual and physical outputs to communicate the project to an audience of experts. 	
Education Method	Tutoring of the design progress in the design studio. Workshop week	
Assessment	Examination takes place in the form of a mid-term and final oral presentation of design and analysis in drawings and images, followed by an oral examination in questions and answers.	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Education starts in week 3.6 and ends in week 4.11	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR2AI010	Interiors Buildings Cities MSc2 Design Project	12
Responsible Instructor	Prof. D.J. Rosbottom	
Course Coordinator	Ir. S. Pietsch	
Instructor	Ir. M.E. Stuhlmacher	
Instructor	Ir. L.M.M. de Wit	
Instructor	M. Pimlott	
Instructor	D.H.G. Somers	
Instructor	Ir. S. Pietsch	
Instructor	Ir. J.S. Zeinstra	
Instructor	Ir. drs. E.P.N. Schreurs	
Instructor	S.S. Mandias	
Instructor	Prof. D.J. Rosbottom	
Contact Hours / Week	4 hours per week	
x/x/x/x		
Education Period	1	
Start Education	2	
Exam Period	3	
Course Language	English	
Summary	The Chair of Interiors Buildings Cities is concerned with making buildings, in places, for people. It conceives of the city, at each scale, as a work of architecture and, hence, the responsibility of the architect. This developing discussion of the chair is contextualised through an annual theme.	
Course Contents	The MSc2 course, Thinking through Making, encompasses design research investigations into thinking about, making and representing architecture, up to and including 1:1 scale.	
Study Goals	The MSc2 programme is a platform for special research and design projects proposed by members and associates of the Chair of Interiors Buildings Cities. At the heart of each of these projects, renewed every semester, is a research question or opportunity that yields possibilities for responses through design, and realised in tangible artefacts or models.	
Education Method	Upon completion of the Master 1, 2, 3 & 4 studio trajectory the student: - Has developed the skills in architectural design satisfying both aesthetic and technical / functional requirements. During the trajectory the complexity of the architectural design increases leading to a level fit for architectural practice and a training period for professional accreditation as architect. - During this trajectory skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology and human sciences. - Additionally, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and society's needs, including environmental aspects. - During Master 1, 2, 3 & 4 process skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing. - Together with the training with regard to aspects of building technology, during the Master 1, 2, 3 & 4 process skills are acquired to incorporate an understanding of the design process with regard to structural design, materialization of buildings and interiors, comfort and climate design.	
Literature and Study Materials	A specific description of the aims of the studios will be published in the Studio Manual, to be distributed at the beginning of the course.	
Assessment	The design studio features individual and group tutorials, and study specific to the design project as well as several dedicated thematic exercises, internal lectures and seminars that pertain to and inform the subject.	
Special Information	to be announced upon beginning of the course	
Period of Education	Assessment will focus on the research work undertaken by the individual student within the set theme; the specific research questions raised within; the specific design study that responds to those questions; the representation of that study in a physical artefact made by the student.	
Leerstoel	Products: models up to 1:1 scale; drawings / texts if applicable	
Course evaluation	The project will be assessed on: - the position that is formulated with regard to the brief and its context; the contribution to a collective discourse. - the appropriateness of the intervention with respect to the assignment; the feasibility and translateability of the idea into a physical manifestation. - aesthetic and technical / functional qualities; the elaboration throughout the respective scales - the quality of the presentation, the products and the argument. - the consistency and coherence and development of the students work during his / her process	
Special Information	The maximum marking period is 10 work days.	
Period of Education	The project starts in week 6 of the first quarter and extends towards the end of the semester. An introduction meeting will take place at the beginning of the semester.	
Leerstoel	Interiors Buildings Cities	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR2AP012	MSc2 Public Building Design Studio	12
Responsible Instructor	Dr.ir. M.G.H. Schoonderbeek	
Responsible Instructor	Dr.ir. S. Komossa	
Course Coordinator	S. Milani	
Course Coordinator	Ir. A.M.F. van Dam	
Instructor	Ir. F. Geerts	
Instructor	Dr.ir. S. Komossa	
Instructor	Ir. M.J. de Haas	
Instructor	Ir. A.M.F. van Dam	
Instructor	Dr.ir. M.G.H. Schoonderbeek	
Instructor	S. Lee	
Instructor	O.R.G. Rommens	
Instructor	A.S. Alkan	
Instructor	N.E.A.I. Deboutte	
Instructor	N. Marzot	
Instructor	S. Milani	
Contact Hours / Week x/x/x/x	8 hours per week	
Education Period	3	
Start Education	4	
Exam Period	3	
Course Language	none	
Course Contents	English	
Course Contents	<p>A-PB's MSc. 2 studio focuses on the conditions under which architecture operates through the limits of global urbanization and emerging contexts, as well as interdisciplinary processes that blur disciplinary bounds. These conditions allow for elaboration on formal expressions of the architects position in regard to both the disciplinary context and the breach of the disciplinary boundaries themselves.</p> <p>Architecture distinguishes itself from mere building: it aspires to accomplish above and beyond meeting necessities and to provide something out of ordinary. We can surmise that architecture stipulates "exceptions" that set itself apart from everyday built environment. Therefore, architecture deals with specificity rather than generality.</p> <p>A-PB's MSc. 2 design studio aims to initiate various design agendas from the specificities and/or exceptionalities of a particular material culture of a place arriving at a fully elaborated architectural design. The studios hinge around the specificities through which the students are confronted with singular aspects of different situations. By elaborating on the core issues and eventually defining their own design positions, students are expected to implement their research into design practice within the collective framework.</p> <p>The sites and urban conditions that vary each year provide testing ground for diverse scales of inquiry, intervention, analysis and cultural perspective. Architectural means, instruments and techniques provide operative interface but also focus on a set of precisely delineated a priori as compositional constraints. Hence design research is exercised by and within the instruments, techniques and languages of architectural design.</p> <p>The cities of the design groups will be announced shortly before the enrollment period starts. Each enrolled student will have an opportunity to choose the group of his/her preference.</p> <p>Each city-group requires an excursion abroad. The excursion may cost around 400 or more per person for transport, lodging and other expenses depending on the location.</p>	
Study Goals	<p>Learn to design an architectural object that meets aesthetic as well as technical and functional requirements.</p> <p>Understand the relationship between architectural work and its context, as well as the ways to relate architectural experimentation to culturally conducive urban environment.</p> <p>Understand the role of architects and architecture in society.</p> <p>Develop the ability to clarify a design project to others by means of images, spoken and written words.</p>	
Education Method	<p>Studio: 112 hours Lectures: 8 hours Independent study: 216 hours</p>	
Assessment	<p>Studio attendance & participation</p> <p>Excursion participation</p> <p>Mid-term (week 4.2) and final (week 4.10) reviews</p> <p>(Specific weeks & dates of the presentation may be subject to change according to the official academic calendar of the university.)</p>	
Special Information	<p>The studio work may include and be supplemented by charrettes, informal/intermediate reviews, as well as by supplementary lectures and workshops.</p> <p>Shortly prior to the beginning of the semester, each student will have an opportunity to choose and sign up for one of the city-groups. The student must select and express the first, second and third preferences. When the preferences are missing, the student will be randomly assigned to a city-group.</p> <p>After the city-studio selection process, each student will also be given an opportunity to switch places 1:1, if necessary and at the discretion of the studio instructors.</p> <p>During the first half of the semester, until the midterm review, the students will work in groups.</p> <p>The maximum marking period is 10 work days.</p> <p>For more information, contact: pb-edu-bk@tudelft.nl</p>	

Period of Education	Semester
----------------------------	----------

AR2AT020	Agential Materialism Architecture Theory Design Studio	12
Responsible Instructor	Dr.ir. H. Sohn	
Course Coordinator	Dr.ir. H. Sohn	
Instructor	Dr.ir. A. Radman	
Instructor	Dr.ir. H. Sohn	
Instructor	Dr.ir. S. Kousoulas	
Instructor	Dr. A. Altes Arlandis	
Contact Hours / Week x/x/x/x	8 hours per week	
Education Period	4	
Start Education	4	
Exam Period	none	
Course Language	English	
Required for	This course is an elective choice for the required MSc2 studio credits.	
Expected prior knowledge	Students with interest and motivation in theoretical and conceptual aspects of architecture design are encouraged to join this studio.	
Course Contents	<p>The Architecture Theory Studio Agential Materialism is a design studio with a strong theory component that engages architecture as a material-discursive practice, in which the conceptual and the non-conceptual (theory & design) are regarded as fully agential and relational: they happen and emerge in the same space-time-matter continuum. In our studio we will investigate conceptual terms such as matter, objects, things, bodies, as well as the notions of process, change, emergence and agency, among many others, as a means to investigate their application and potential for architecture design. Our studio explores the power of concepts as methods for practice, and experiments with the affective capacities of matter as fundamental in the genesis of form.</p> <p>The thematic and design assignments of our studio vary, but always depart from actions rather than programmatic or functional prerequisites, foregrounding the potentials of architectural, material and spatial agencies involved in the design process.</p> <p>This studio is highly experimental and hands-on in regards to the material aspects of theory as practice. It welcomes students who are inclined to explore unfamiliar (yet exciting) themes, raise interesting questions and problems, and experiment with ideas and matter to make their design practice and skills more meaningful.</p>	
Study Goals	<p>After completion of this design studio the participants will:</p> <ul style="list-style-type: none"> have a solid base of knowledge on recent literature in the humanities and the social sciences and their relation to architecture practice and theorization have acquired solid knowledge-base to discern theoretical, analytical and synthetic methodologies and their application in the design process. have developed a deeper understanding of the relationships, potentials and interactions of different agents involved in any design process. have developed experimental and innovative design skills through conceptual, abstract and theoretical thinking. have experimented with different media and tools as aids for the communication of architectural proposals and ideas. have acquired research skills, and will be able to apply these in reflections and theoretical argumentation of their design projects. will have acquired understanding of the societal, cultural, technological and ethical dimensions of a design process that includes human and non-human actors alike. 	
Education Method	<ul style="list-style-type: none"> monthly lectures and weekly theory seminars discussion on related themes weekly design studio reviews presentations (interval & final) with visiting critics 	
Course Relations	<p>This course is compatible with the Architecture Theory Thesis course (AR2AT030). We encourage students to follow both courses in the same semester.</p> <p>Students wishing to participate in both courses are advised to register in the enrolment period for the Spring semester.</p>	
Literature and Study Materials	<p>Study material, reading lists and other relevant course-related literature will be made available to the students prior to the first meeting.</p>	
Prerequisites	<p>Students wishing to participate in this course are strongly recommended to have completed the necessary credits for MSc1.</p>	
Assessment	<ul style="list-style-type: none"> methodology development architectural design proposal theoretical reflection 	
Special Information	<p>This course is highly compatible with the Architecture Theory Thesis (AR2AT030). Students wishing to follow this studio are advised to enrol in both courses. Please note that the courses have different education periods (Q1/3 & Q4 respectively)! For questions please contact our student assistants or the academic coordinator at AT-MSc-BK@tudelft.nl</p>	
Elective	Yes	
Tags	<ul style="list-style-type: none"> Abstract Adventurous Design Group work Intensive Process Research Methods 	
Period of Education	This studio is offered only in Q4 (Spring term) of each academic year.	
Leerstoel	Architecture Theory Chair	
Maximum aantal deelnemers	20 students	

AR2CP010	MSc2 Complex Projects Design and Research Studio	12
Responsible Instructor	Prof.ir. C.H.C.F. Kaan	
Course Coordinator	M. Triggianese	
Contact Hours / Week x/x/x/x	80 hours per Quarter	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	BSc and MSc 1 completed	
Course Contents	<p>AMBITION In Master 2 we focus on Cities. This research and design studio promotes broad speculation, independent thinking, collective work with the aim of positioning architecture into a broader social, cultural, political, and economic context. Through the various themes, students are exposed to the versatile layers of the city, while simultaneously expected to engage their observations with daily studio work. Understanding the hard and soft layers, that actually define the values of a contemporary city, can lead towards ambitions to follow. After forensic analysis of the layers, a new framework will be developed for the project area that will be extracted and developed in detail.</p> <p>EVALUATION Evaluations will be based on the research approach, dedication, commitment, effort and improvement of the team in the investigation of the City (and the project area). Concrete aspects for evaluation are: research work, clarity of the problem statements, originality of the final presentation. Please contact the course coordinator for the specific programme / cities of the semester.</p>	
Study Goals	<p>The student: Has developed the skills in architectural design satisfying both aesthetic and technical/functional requirements. During the trajectory the complexity of the architectural design increases leading to a level fit for architectural practice. During this trajectory, skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology and human sciences. Additionally, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and societies needs, including environmental aspects. During MSc1, 2, 3 & 4 process skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing.</p>	
Education Method	Besides studio program students are expected to fully engage with events and people which the sites have to offer. Workshops, lectures, tours and travels are included in the studio programme.	
Assessment	Midterm presentation including research, argument and concept. Final presentation with posters and research booklet. Additional visualisation tools can be used, such as video, reportage, models.	
Special Information	As part of the Complex Projects objective, the search for definition of city guides the Design and Research studio, 'IN Cities' studio in its most direct way. Please contact the studio coordinator to know this year's case studies.	
Period of Education	Semester	
Leerstoel	Complex Projects, department of Architecture	
Minimum aantal deelnemers	12	
Maximum aantal deelnemers	16	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR2FM010	The Delta Shelter	12
Responsible Instructor	P.A. Koorstra	
Course Coordinator	P.A. Koorstra	
Education Period	3 4	
Start Education	3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	BSc and Master 1	
Course Contents	<p>The assignment is to design a small project in a Delta environment; a dynamic and natural surrounding on the border of water and land.</p> <p>The infinity of the location and the constant changing conditions invite to research the meaning of boundaries and the integration of the landscape in the design. The experience of the specific and poetic qualities of this environment will be one of the explicit themes in this course; the contradiction between the human scale and the unrestricted landscape, the influence of wind and tide, the flora and fauna and the position of human within this often vulnerable ambience.</p> <p>The role, impact and contribution of architecture in such places is part of the research in this assignment. More specific the typology and manifestation of the architecture will be discussed and developed on the basis of the design proposals. The ethics and aesthetics of architecture will be discussed regarding questions as; What are the necessary conditions for architecture to give a satisfying contribution to this environment? Is it inevitable that architecture is a disturbing factor, can it only be of temporary presence, or can architecture contribute to the appreciation and preservation of these kind of environments?</p> <p>The project will be developed by using physical scale models, hand sketches and text during all the phases of the design process; the analysis, design and presentation. The aim of this method is to stimulate the creative process by using the physical model and drawing as a feedback and inspiration tool to develop the concept into a design.</p>	
Study Goals	<p>-The student will gain competence is conducting design research and research-by-design by using physical models and hand drawings as a tool throughout the design process.</p> <p>-The student will gain insight in collaborating and communicating by making active use of various scale models to present the design in all its aspects; the architectural composition, materialisation and integration of construction.</p> <p>-The student will be able to communicate his contemplations and reflect on the role and position of the architect in this assignment.</p>	
Education Method	lectures and design studio format. Weekly assistances in groups as well on individual basis.	
Assessment	<p>Assesment on the basis of process, analysis, documentation and (re)presentation of the end result. A brief reflective statement of max 450 words is part of the assesment.</p> <p>Presentation will contain a variety of physical models, drawings, photographs and text.</p> <p>The products should give a clear insight in spatial design, the construction and the relation and meaning of the design towards its environment.</p> <p>The student has achieved a sufficient result on scale 1 to 10 with 6, has the possibility to take a resit with a mark between 5 and 6 and failed with 4,9 or minor. Resit has to be completed within 2 weeks after completion the studio.</p>	
Special Information	coordinator	
Remarks	A site visits can be part of the studio	
Period of Education	Q3 & Q4, 15 weeks, starting in week 3.6	
Leerstoel	Form & Modelling Studies, Architecture	
Minimum aantal deelnemers	12	
Maximum aantal deelnemers	32	

AR2MET010	Transdisciplinary Encounters	12
Responsible Instructor	Dr.ir. P.J. Teerds	
Responsible Instructor	Dr.ir. K.M. Havik	
Course Coordinator	Dr.ir. P.J. Teerds	
Instructor	Dr.ir. P.J. Teerds	
Contact Hours / Week x/x/x/x	4 hours per week	
Education Period	4	
Start Education	4	
Exam Period	none	
Course Language	English	
Course Contents	<p>The field of architecture holds a broad set of research and design methods, but also has the capacity to productively engage with approaches and perspectives from other fields that deal with the built environment such as literature, arts, cinema, philosophy, psychology, and social sciences. In contemporary architectural practice several architects (Steven Holl, Peter Zumthor, Bernard Tschumi, Rem Koolhaas) have used these productive encounters and exchanges with other fields to reorient architectural analysis and design.</p>	
	<p>The Msc2 studio Transdisciplinary Encounters offers a site of exploration for students interested to pursue the possibilities of the encounter between the architectural practice and other disciplines. These may be artistic disciplines, providing instruments such as literary description, narrative, montage and scenario writing, or disciplines from social sciences, providing fieldwork techniques related to social spatial practices and user behaviour. The studio encourages students to develop experimental methods of analysis and design in order to obtain new design solutions.</p>	
	<p>This studio is dedicated to the exploration of a broader scope upon the built environment by using encounters and exchanges with methods from other disciplines. It focuses on the implementation of investigative and creative methods from these fields, particularly focussing on site research and how such new methods and ways of looking can be implemented within the field of architecture.</p>	
	<p>The studio exercise will depart from specific and extensive fieldwork methods, and aims to carry out a site-specific analysis with experimental techniques. Results from the site analysis will be brought to the field of architecture step by step, in order to lead to architectural or urban strategies of intervention.</p>	
Study Goals	<p>the student:</p> <ul style="list-style-type: none"> -becomes acquainted with approaches from other disciplines such as literary, artistic and cinematographic practices, or social science disciplines -learns to conduct field work on site -learns to use and develop experimental methods of analysis and design -implements investigative and creative methods from these fields to conduct site research and develop urban or architectural strategies for a given site 	
Education Method	<p>Combined seminar and studio; in-situ fieldwork. Through experimental in-situ fieldwork the studio will develop tools in order to understand and address the issue of the public realm of a specific city, area or neighbourhood. To do so, during the studio students will adopt and adapt techniques from different other scientific or artistic fields that adjust the profession of architecture, like social geography, anthropology, sociology, and philosophy or sculpture, literature, and cinema. Through these investigations, detailed quantitative and qualitative mappings can be drawn, based on statistical analyses, socio-historical research and in-depth interviews. Depending on the specific approach of the studio, these techniques can be combined with particular drawing techniques such as the section, the softmap and the collage. The site research will thus result in evocative and speculative drawings, models, texts, and films. In a concise presentation the students are requested to evoke their projects and visions on a larger urban scale, as well as to propose site-specific interventions.</p>	
Assessment	<p>For this elective course, the process and the development of appropriate tools for fieldwork and the students reflection upon these methods and the results of the fieldwork will be assessed through mid-term presentations and a final presentation. Criteria are focussing on the consistency of the project: the relation between methods, research findings and urban or architectural strategy.</p> <p>The students are expected to bring their work together in a collective book, thereby showing the broad perspective of site investigations and developed strategies. For the final presentation, representatives from the given site and disciplinary field will be invited as guest critics.</p>	
Elective	Yes	
Tags	Research Methods	
Period of Education	Quarter	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

MSc1 Design Projects

AR1AD011	Dwelling Design Studio: 'The Netherlands'	12
Responsible Instructor	Ir. P.S. van der Putt	
Course Coordinator	Ir. P.S. van der Putt	
Instructor	Ir. P.A.M. Kuitenbrouwer	
Instructor	Ir. O. Klijn	
Contact Hours / Week x/x/x/x	112 hours per semester	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Course Contents	<p>Students of the Dutch Housing Studio design a residential complex in an urban environment in the Netherlands. The design is accompanied/preceded by research into the design assignment and the specific topics of the studio.</p> <p>Each semester the design assignment may be different from the one before. Oftentimes there are two studio options (however, the chair reserves the right to cancel an option if there is a lack of interest from students).</p> <p>Though topics may vary from one semester to the next, at the core of each studio lies the design of dwellings and of the dwelling environment, complemented by research and literature study. Design work is done individually, while some of the research may be performed in teams.</p> <p>Topics of the Studio may include (but are not limited to) the inclusive city, work-live combinations, projects for specific target groups, and small scale interventions. More specific information about the design assignment of the upcoming semester can be found on the website and at the Master-information meetings that take place twice a year.</p> <p>All MSc 1 Dwelling students will take part in a site excursion as well as a workshop or master class revolving around the theme of the studio. The studio is not available for MSc 2 students. MSc 1 students are required to also enrol in Architectural Studies (AR1AD030) and Architectural Reflections (AR1AD040).</p>	
Study Goals	<p>Upon completion of the course the student is able to</p> <ul style="list-style-type: none"> design a sketch version of an urban plan for a given area in terms of massing, program and zoning. design a complex residential building with additional functions, subscribing to the functional demands of the brief and the spatial, structural, technical and aesthetic requirements of architecture. design several dwellings that suit functional demands of their respective target groups. perform research of precedent projects and to demonstrate their impact on his/her own design. develop and compare design alternatives. critically reflect on the assumptions and starting points of the brief. convey his/her design ideas by way of (oral) presentations. critically reflect on his/her own design process. 	
Education Method	Studio: 70 hours Self-study: 266 hours	
Assessment	<p>Presentations will be held throughout the semester; assessment by way of final presentations at the end of the studio. Exact requirements to be announced at the start of the studio.</p> <p>The final grade (F) for AR1AD011 will be a weighted average of the Architecture grade (A) and the Building Technology grade (BT), such that $0,8 \times A + 0,2 \times BT = F$. Both A and BT will be rounded to half or whole points. The final grade will be rounded to one decimal place.</p>	
Special Information	The maximum marking period is 10 working days.	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1AE010	EXTREME architecture	12
Responsible Instructor	Prof.dr.ing. U. Knaack	
Course Coordinator	Ir. R. Schroën	
Contact Hours / Week x/x/x/x	12 hours per week	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Course Contents	<p>The project is about building in a extreme situation, in respect to climate, location and function. Essence is the interaction between the extreme circumstances, the technical solutions, and the architecture. Extreme circumstances do request technical solutions which will be the starting point for the design development. The designer has to direct the 'engineer questions and answers', towards the articulation of the form which is based on integration of aesthetic and technology.</p>	
	<p>For this project we will be focussing on the Maldives: a group of atolls which is expected to disappear below the rising sea level. How can we use architecture and engineering to preserve this community?</p>	
	<p>"Die Architektur des 21 Jahrhunderts hat ihre Unschuld verloren, Gebaude müssen etwas leisten" Stefan Behnisch.</p>	
	<p>In the end the student is able to understand technical solutions, to reflect on them, to applicate them and to transform them. And the student is able to design a coherent design result.</p>	
Study Goals	<p>Upon completion of the MSc1, 2, 3 & 4 studio trajectory the student: Has developed the skills in architectural design satisfying both aesthetic and technical/functional requirements. During the trajectory the complexity of the architectural design increases leading to a level fit for architectural practise. During this trajectory skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology and human sciences. Additionally, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and societys needs, including environmental aspects. During MSc1, 2, 3 & 4 process skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing. Together with the training with regard to aspects of building technology, during the MSc1, 2, 3 & 4 process skills are acquired to incorporate an understanding of the design process with regard to structural design, materialisation of buildings, comfort and climate control.</p>	
	<p>In the end the student is able to design a healthy coherent building in extreme conditions with a focus on technical solutions: the student is able to apply, reflect and transform principles concerning climate, construction and structure.</p>	
Education Method	Design project	
Assessment	The design result including the aspects structure, climate and envelope.	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1AI010	Interiors Buildings Cities MSc 1 Design Project	12
Responsible Instructor	Prof. D.J. Rosbottom	
Course Coordinator	Ir. S. Pietsch	
Instructor	Ir. M.E. Stuhlmacher	
Instructor	Ir. L.M.M. de Wit	
Instructor	M. Pimlott	
Instructor	D.H.G. Somers	
Instructor	Ir. S. Pietsch	
Instructor	Ir. J.S. Zeinstra	
Instructor	Ir. drs. E.P.N. Schreurs	
Instructor	S.S. Mandias	
Instructor	Prof. D.J. Rosbottom	
Contact Hours / Week x/x/x/x	4 hours per week	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Summary	<p>The Chair of Interiors Buildings Cities is concerned with making buildings, in places, for people. It conceives of the city, at each scale, as a work of architecture and, hence, the responsibility of the architect. This developing discussion of the chair is contextualised through an annual theme.</p> <p>The MSc1 course, The House in the City, considers detailed material and spatial programmes for proto-typical city buildings with the intention of nurturing architectural sensibilities in students that are attuned to context, users, relations, appearances, spaces and interiors, materiality, and construction.</p>	
Course Contents	<p>MSc 1 is structured as a series of parallel studios, run by a dynamic mix of practitioners and academics and collectively concerned with interpretations of a common theme, the House in the City. Understood ambiguously, as in the German Haus, the concerns of the course are not the representative monuments of culture, nor the private houses of individuals. Instead, projects explore those buildings that stand between, housing our collective urban life and oscillating, in our consciousness, between foreground and background. Carefully wrought, spatially rich, generous and adaptable, such buildings have the capacity to evolve over time and to engage in a territory that might encompass both extended domestic and intimate public life. As discrete elements, subservient to a larger whole, they play small but significant roles in structuring urban fabric and defining urban space, simultaneously taking pleasure in the heterogeneity of the contemporary city and bringing it into order.</p> <p>Through individual projects, each studio addresses how such city houses might be made, experienced and inhabited, in time and space and in response to the particularities of place. Through careful drawing and iterative making, their individual characters emerge in a welcoming interior, through a moment of figuration or in the refinement of a façade.</p> <p>The contents of the individual studios will be published at the beginning of the semester. Students are asked to indicate their preference for one of them. Usually the studios include a 2-3-day excursion to a location relevant to the project. The corresponding information will also be communicated at the start of the semester.</p> <p>The MSc1 Design Project (Ar1Ai010) is conceived in conjunction with the Fundamentals course (AR1Ai040). Students are required to enrol to both courses.</p>	
Study Goals	<p>Upon completion of the Master 1, 2, 3 & 4 studio trajectory the student:</p> <ul style="list-style-type: none"> - Has developed the skills in architectural design satisfying both aesthetic and technical / functional requirements. During the trajectory the complexity of the architectural design increases leading to a level fit for architectural practice and a training period for professional accreditation as architect. - During this trajectory skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology and human sciences. - Additionally, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and society's needs, including environmental aspects. - During Master 1, 2, 3 & 4 process skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing. - Together with the training with regard to aspects of building technology, during the Master 1, 2, 3 & 4 process skills are acquired to incorporate an understanding of the design process with regard to structural design, materialisation of buildings and interiors, comfort and climate design. <p>A specific description of the aims of the studios will be published in the Studio Manual, to be distributed at the beginning of the course.</p>	
Education Method	<p>The design studio features individual and group tutorials, and study specific to the design project as well as several dedicated thematic exercises, internal lectures and seminars that pertain to and inform the subject.</p> <p>A characteristic working method of the Chair is the building of physical models of varying scales in which ideas about the design project are tested and materialized.</p>	
Literature and Study Materials	To be announced upon beginning of the course	
Assessment	<p>The design studio concerns the development of an architectural project on all scale levels, from its urban setting to its materiality and elaboration of its details. The project will be assessed during an intermediate, pre-final and final presentation on its:</p> <ul style="list-style-type: none"> - the position that is formulated with regard to the brief and its context - the appropriateness of the intervention with respect to the assignment - aesthetic and technical / functional qualities - the elaboration throughout the respective scales - the integration of the disciplines included - the quality of the presentation, the products and the argument. - the consistency and coherence and development of the students work during his / her process <p>The products to be assessed include the design proposal represented through drawings, models and text; the project journal and</p>	

	the portfolio.
	The final grade consists of partial grade of 80% for Architecture and 20% for Building Technology. Both grades need to be sufficient for the student to pass.
Special Information	The maximum marking period is 10 work days.
Period of Education	Semester
Leerstoel	Interiors Buildings Cities
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/

AR1AR011	Heritage and Architecture Design Studio: Architectonic Design	12
Responsible Instructor	Ir. W. Willers	
Course Coordinator	Ir. W. Willers	
Instructor	Ir. A.W. Hermkens	
Instructor	Ir. W. Willers	
Contact Hours / Week x/x/x/x	8 hours per week	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Summary	The design assignment focuses on the intervention at existing buildings or ensembles to meet requirements of contemporary and future use. The design process will be guided by exploring design possibilities and architectural consequences of the design.	
Course Contents	<p>The object of this Heritage & Architecture studio is the architectural design for the re-use of a building or building-ensemble to meet requirements of contemporary and future use.</p> <p>A transformation framework will be made by the interpretation of the analysis of the urban context, the building and the program requirements. Various aspects of designing in existing built structures are investigated by studying reference projects and literature.</p> <p>By working on different scale-levels a coherent design will be made. At atelier meetings different aspects like relation existing new, urban context, functionality, spatial quality, technical aspects, material aspects will be discussed.</p> <p>Different presentations will help students to develop their presentation skills.</p> <p>The current debate of transformation and intervention with topics like authenticity, sustainability, layers of history, and so on is very present during this course on every single scale.</p>	
Study Goals	<p>Upon completion of the Master 1 design project the student is able to:</p> <ul style="list-style-type: none"> - interpret cultural values on urban, architectural and technical scale and create a transformation framework, - translate a transformation framework to a design strategy, and a design strategy to an elaborated design, - incorporate aspects in the field of architectural history and architectural theory, art, society's needs, human sciences and environmental aspects. - make a design satisfying functional, aesthetic and technical requirements, - position the project in the discourse, - explain the architectural design during a presentation by combining oral, written and graphic media (e.g., drawings, models) 	
Education Method	Design coaching, 4-8 hours counseling per studio during educational weeks, total 112 hours. Self study: total 224 hours.	
Literature and Study Materials	Will be delivered by the tutor and/or coordinator, or via Brightspace	
Assessment	Research booklet Presentation at the end of the semester	
Special Information	Presence at the first meeting is mandatory. For the assessment the presence during the course and the overall design process will be taken in consideration.	
Period of Education	Semester	
Leerstoel	Heritage & Design	
Minimum aantal deelnemers	12, minimum group 8 students	
Maximum aantal deelnemers	48	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1CP010	Complex Projects Design Studio	12
Responsible Instructor	Prof.ir. C.H.C.F. Kaan	
Course Coordinator	M. Triggianese	
Instructor	Ir. A.T. Richters	
Instructor	S. Filippas	
Contact Hours / Week x/x/x/x	80 hours per semester	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	BSc degree Architecture	
Course Contents	<p>As introduction to Complex Projects, this design studio, 'Landmark', has the ambition to make students familiar with the multiple aspects that define a building. Landmark assignment aims for developing skills in the scientific method of analysis and synthesis. Via anatomical dissection, students learn to identify soft and hard aspects of a building while placing them in the bigger frame of the total composition of the building and its context.</p> <p>The studio promotes broad speculation, independent thinking, collective work with the aim of positioning architecture into a broader social, cultural, political, and economic context. Students will perform a thorough urban research in order to understand the areas history and context, and to identify the Landmarks that could become catalyst for intervention. The research zooms in from the large scale of the city itself, to the medium scale the site, to the small scale of the building. The resulting data has to be organized into a comprehensive research book. This serves as basis for forming a narrative which is leading for the individual redesigns of the Landmark.</p> <p>The seminar AR1CP040 (Anatomy) is fully integrated with the studio. An educational trip / excursion with on-site workshops is part of the studio program. Please contact the studio coordinator to know this year's case studies.</p>	
Study Goals	<p>Upon completion of the MSc1, 2, 3 & 4 studio trajectory the student:</p> <ul style="list-style-type: none"> Has developed the skills in architectural design satisfying both aesthetic and technical/functional requirements. During the trajectory the complexity of the architectural design increases leading to a level fit for architectural practice. During this trajectory, skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology and human sciences. Additionally, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and society's needs, including environmental aspects. During MSc1, 2, 3 & 4 process skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing. Together with the training with regard to aspects of building technology, during the MSc1, 2, 3 & 4 process skills are acquired to incorporate an understanding of the design process with regard to structural design, materialization of buildings, comfort and climate control. 	
Education Method	Tutorials in studio. Research will be done in thematic groups, design is either individual or in groups of max 2 students.	
Reader	Reader (syllabus) with the studio programme, the basic literature and the weekly schedule will be provided prior to start studio	
Assessment	<p>Monthly pin ups showing research, argument and concept.</p> <p>Trial presentation two weeks prior to the final presentation. The overall work has to be finished by then. Final presentation composed of research books (with critical investigations and site-analysis) and design studio book (with design projects) and digital presentation.</p>	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Semester	
Leerstoel	Complex Projects, department of Architecture	
Minimum aantal deelnemers	16	
Maximum aantal deelnemers	32	
Course evaluation	<p>Evaluations will be based on the overall performance within the studio. The students performance will be determined by the quality of his/her work, commitment, teamwork, effort and improvement over the entire course of the semester. Concrete aspects for evaluation are; research work, argument formulation, translation argument into concept, urban plan, architectural design, presentation.</p> <p>For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/</p>	

AR1MET010	Ways of Doing	12
Responsible Instructor	Dr.ir. K.M. Havik	
Course Coordinator	Dr.ir. P.J. Teerds	
Instructor	Dr.ir. P.J. Teerds	
Instructor	Dr.ir. W.W.L.M. Wilms Floet	
Contact Hours / Week x/x/x/x	8 hours per week	
Education Period	1 2	
Start Education	1	
Exam Period	none	
Course Language	English	
Summary	<p>The studio Ways of Doing aims to develop and assess distinct methods that allow for innovative way of analysis, architectural design, and spatial intervention in challenging (post-)industrial regions in the Low Countries. Every semester a different site to work on is chosen. These (post-)industrial areas often are dominated by characteristic constructions and buildings: huge installations, factories, warehouses and offices, some still in use, others empty. Particularly in the post-industrial sites, often social questions and signs of foreclosure dominate both the political and the physical landscape. Cities make redevelopment plans, although often it is quite difficult to find the right program and approach in order to revitalise such areas as the local economy.</p> <p>The aim of education in the Methods & Analysis MSc1 studio is to merge analysis and design extensively, in order to face difficult architectural, spatial, technological, social and political questions that dominate these (post-)industrial landscapes.</p>	
Course Contents	<p>From Otto Wagner to Aldo Rossi and Robert Venturi, architects have always developed new approaches and tools to react to changing urban conditions. The studio Ways of Doing wants to position itself within this architectural tradition and asks: Which toolbox can we cultivate to confront new urban ecologies like (post-)industrial landscapes? Through particular assignments, it aims to develop and assess distinct methods that allow for innovative way of analysis, architectural design, and spatial intervention in the challenging reality of (post-)industrial landscapes in various cities in The Netherlands and Belgium. Each semester another site is chosen to be investigated. These (post-)industrial areas often are dominated by characteristic constructions and buildings: huge installations, factories, warehouses and offices, some still in use, others empty. Particularly in the post-industrial sites, often social questions and signs of foreclosure dominate both the political and the physical landscape. Cities make redevelopment plans, although often it is quite difficult to find the right program and approach in order to revitalise such areas as the local economy. Students investigate the spatial, social and political situation by studying particular themes, like the atmosphere, the infrastructure, public space, as well as by using specific methods of analysis and design, like soft-mapping and drawing sections, or developing narratives or spatial poems. Analysis, in this particular perspective, is extensively part of the design-approach that the student will develop during the studio. Part of this approach also is the choice of location, program and aim of a spatial intervention in the area of study.</p>	
Study Goals	<p>Upon completion of the Master 1, 2, 3 & 4 studio trajectory the student:</p> <ul style="list-style-type: none"> - Has developed the skills in architectural design satisfying both aesthetic and technical / functional requirements. During the trajectory the complexity of the architectural design increases leading to a level fit for architectural practise. - During this trajectory skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology and human sciences. - Additionally, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and societies needs, including environmental aspects. This includes moral decision and argumentation skills regarding architectural ethics, especially when addressing social, political, environmental and technological issues. - During Master 1, 2, 3 & 4 process skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing. - Together with the training with regard to aspects of building technology, during the Master 1, 2, 3 & 4 process skills are acquired to incorporate an understanding of the design process with regard to structural design, materialisation of buildings, comfort and climate control. 	
Education Method	<p>The msc1 studio Ways of Doing takes up the task to investigate new tools and methods to address the challenging paradox of historical presence on the one hand, and large new developments on the other. The studio does so by constantly shifting to different methods, in order to look at the site and the research question from various perspectives, which can vary from strict architectural towards technological, and from spatial to political perspectives.</p> <p>During the course, different methods will be applied: from fieldwork to investigations by means of narrative or sections; from material explorations to the development of sequences of use; by focussing on building-technological aspects or on atmospheric aspects of spaces; from focusing on basic architectural elements such as floor, wall and roof, to articulating structural aspects like repetition and hierarchy.</p> <p>Students will start to work in small groups on distinct research themes the result of these investigation is understood as the share knowledge base that is developed in the studio. Based on these insights, the students either continue to work in groups or work individually on the proposal of a spatial intervention in a location of choice.</p>	
Course Relations	<p>This design studio is accompanied by two theoretical seminars, Architectural Tools (AR1MET030) and The Roles of the Architect (AR1MET040) that respectively investigate the instruments used by architects to develop their plans and ideas, and how these affect the very outcome of the design-process, and explore the various roles architects can take within contemporary practices and society.</p>	
Assessment	<p>The course is assessed through a mid-term review and a final presentation of the project. However, as for this course the process is as important as the final design, the students need to present not only the project, but also substantial intermediate findings. The tutors will assess, during the mid-term review and the final presentation the way students understand and apply different methods offered. Particular attention will be given to the question how the student succeeds in using methods as offered in the studio, and how the student is able to formulate particular design hypothesis based on these exercises. The consistency of the project on a methodological, architectural and technical level is crucial for the final assessment. For the mid-term review as well as for the final presentation, external critics will be invited.</p>	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1TWF010	The Why Factory Design Studio: Design lab I	12
Responsible Instructor	Prof.ir. W.G.M. Maas	
Responsible Instructor	F.M. Madrazo Salazar	
Course Coordinator	J. Arpa Fernandez	
Instructor	F.M. Madrazo Salazar	
Instructor	Prof.ir. W.G.M. Maas	
Co-responsible for assignments	S. Gargaretas	
Contact Hours / Week x/x/x/x	6 hours per week	
Education Period	1 2	
Start Education	1	
Exam Period	none	
Course Language	English	
Course Contents	<p>This course is a MSc1 studio, and is organized as a think tank. Studios at The Why Factory are content-driven design and research studios with a practical and theoretical scope. MSc1 studios are research labs and platforms that aim to analyse, theorize and construct future cities. They conduct a variety of investigations within the given world, and produce future scenarios beyond it: from universal to specific and global to local.</p> <p>MSc1 studios start with a specific brief and a statement on the future of urban life. Based on the brief, future scenarios will be developed leading to visionary, city-related designs.</p> <p>Students develop their specific approach to the brief and define the necessary scientific research. Calculations, simulations or modelling to support the studio work are elaborated in a parallel seminar: the Future Models seminar.</p> <p>The results of the research lead to a design project with consequent logic, convincing argumentation and illustrative and fantastic visuals.</p>	
Study Goals	<p>Upon completion of the Master 1, 2, 3 & 4 studio trajectory, the student:</p> <ul style="list-style-type: none"> - Has developed the necessary skills in architectural design that satisfy programmatic, aesthetic and technical requirements. During the Masters trajectory, the complexity of the architectural design increases, leading to the level required for professional practice. - During this period, skills are acquired to increasingly incorporate an understanding of design processes, architectural history and theory, art, technology and human sciences. - Additionally, skills are acquired to incorporate into design an understanding of the relation between buildings, spaces and society's needs, including environmental aspects. - During Master 1, 2, 3 & 4, skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing. - Together with the building technology training, during Master 1, 2, 3 & 4 skills are acquired to incorporate an understanding of the design process with regard to structural design, materialisation of buildings, comfort and climate control. 	
Education Method	Atelier: 150 hours Self study: 270 hours	
Course Relations	<p>MSc1 studios are linked to two other courses of The Why Factory: the Actualities Workshop (AR1TWF020) and the Future Models seminar (AR1TWF030).</p> <p>Students who join the MSc1 design studio AR1TWF010 as core course must join AR1TWF020 and AR1TWF030 as well.</p> <p>Students who join the design studio AR1TWF010 as an optional MSc2 studio are not obliged to join AR1TWF020 and AR1TWF030. However, we advise students to join the Future Models seminar AR1TWF030, as it may be helpful for the content of the design studio.</p>	
Assessment	Presentation	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

MSc 3 MA

AR3A160	Lecture Series Research Methods	6
Responsible Instructor	Dr.ir. P.J. Teerds	
Responsible Instructor	Dr.ir. K.M. Havik	
Course Coordinator	Dr.ir. P.J. Teerds	
Instructor	Dipl.ing. R.A. Gorny	
Instructor	M.F. Berkers	
Contact Hours / Week x/x/x/x	28 hours per quarter	
Education Period	1 3	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	General Master 2 level of knowledge.	
Course Contents	<p>The lecture series will allow MSc 3 students from all the departments and chairs of our Faculty to reflect on and explore a series of methodological approaches, which should strengthen their architectural positions in the graduation studio, towards the conclusion of their formative process and the consequent obtainment of the corresponding degree.</p>	
Study Goals	<p>Students involved in this course are expected to operate at a final year Masters level, meaning they are responsible for performing critically within the series of concepts presented in the course; as well as individually fulfilling course requirements such as being acknowledged with the basics of scientific writing, formulating hypotheses and investigating at a level equivalent to their standing within the curricular track.</p> <p>This lecture series will address scientific integrity to make sure that architecture students develop the necessary skills for integer research approaches while being aware of the societal, political, physical and environmental impacts their research and design work has.</p> <p>The lecture series aims to:</p> <ul style="list-style-type: none"> - Take advantage of the magnitude and diversity of the series. The line-up of lecturers, paired to the differences among the academic tracks followed by students from several chairs and departments, should substantially enhance each discussion, and promote creative approaches to each of the topics discussed. - Endow the students with clear knowledge of the heuristic nature of their work. The central thesis of the course is that all architectural activity is an exploration within identifiable disciplinary fields of experimentation, based on equally identifiable epistememes. Awareness of that explorative/cognitive capacity of architecture we sustain is a crucial element in the formation of an architect. - Present the students with a selection of relevant and progressive architectural methodologies and analytical strategies that are currently being used and discussed within the A+BE academic community and in other outstanding educational institutions. - Invite students to become engaged in these discussions actively, in order for their graduation processes to constitute real contributions to the professional debate that feeds our Faculty. It is expected that, with the information provided in this course, each graduation process aims to produce additional architectural knowledge in the face of established and ongoing research programs. - Focus on moral sensibility, analysis, creativity, judgment, and skills regarding architectural ethics when developing specific expertise. 	
Education Method	<p>The course comprises two, parallel activities: A series of lectures and the preparation of a position paper. The lecture series is made up of seven sessions. Six have defined topics, the first is introductory. Each lecture session includes a 30+ min. presentation by a lecturer, a 30+ min presentation by a group of students, and a 30+ minute series of Q&A, presented to both lecturer and students. Each guest lecturer is responsible for submitting on the fore a reference text for students to prepare the session, and a paper of her authorship that exposes, summarizes or complements her presentation. Both documents will be made available to the whole group of students with sufficient anticipation.</p> <p>A group of students will be responsible for preparing each lecture. These groups will be formed during the course intro, and will divide themselves into a subgroup in charge of presenting the topic, and other subgroups in charge of preparing a series of debate topics and questions, for the closing discussion.</p> <p>The whole group of students in charge of preparing each session will participate in a workshop, in which they will be guided in the development of their presentation and the construction of different positions within the chosen topic, looking forward to the debate. These workshops will take place on Monday mornings, and will be tutored by the coordinators of the lecture series and/or staff from the chair of Methods and Analysis.</p> <p>Before entering each lecture session, the group of presenting/debating students will hand in a paper of their authorship (2000 words, aprox.) that exposes, summarizes or complements their presentation, the images that accompany their talk, the questions and debate topics developed to feed the debate, and any other addenda they consider necessary to support their understanding of the topic.</p>	
Literature and Study Materials	A reader will be distributed via Blackboard/Brightspace	
Assessment	<p>Each student is responsible to elaborate on her own reflections regarding the course, the debates, the literature that will be provided and suggested, and her own graduation process, by producing an individual position paper (aprox. 2000 2500 words), following scientific standards of writing and structuring her topics (acknowledging a state of the art for a particular discussion, for example) towards the construction of a methodological apparatus in affinity with her own intentions and inclinations.</p> <p>Upon request, specific tutoring/workshops for this second component are available, in the same group format utilized for the preparation of the sessions.</p> <p>In order to attend one of these tutorials, interested students must submit a full draft of their essay, including their name, student number and current chair/graduation studio. The submission deadline for this draft will be specified at the beginning of the period.</p> <p>The course coordination will group the drafts and submit them to available tutors, by topic affinity. These tutors will read the drafts and subsequently organize a workshop with small groups of students. The aim of these workshops are to clarify doubts, elaborate on formal and stylistic concepts, and contribute thematically to the development of the final versions of the papers.</p> <p>The fact that extra tutoring is available does not mean that the students are not encouraged to also seek additional support from their teachers in the other courses that constitute the graduation track.</p> <p>Position papers are expected to be approximately 2000 2500 words in length, and should comply with academic and scientific standards in terms of form and style.</p> <p>The fundamental aim of this assignment is to enable students to formulate a sound and consistent architectural position, in the</p>	

face of the broader discussions presented as a partial state of the art of professional discussion, both within our Faculty and in contemporary architecture culture.

Articulating a position requires knowledge and understanding of a diverse array of postures, which are carefully considered in response to the problems of our time. Getting acquainted with diverse sources, authors and architectural examples; articulating the information contained in these sources; abstracting and operating with the useful and/or relevant ideas they represent; and (hopefully) further elaborating them into progressive architectural models; are all goals of this exercise.

It is assumed that the reflections generated during the course, and the resulting position paper, are active components of the broader exploration that is the graduation project. Research, reflection, discursive elaboration and historical contextualization are fundamental parts of a complete architectural intervention, meant to perform in site- and cultural-specific conditions, but also in the broader intellectual framework that is the architecture of our time.

In this sense, reflections should elaborate on the central concepts, methods and tools employed in the development of the architectural explorations leading to the Masters degree, at a level that transcends the simple description of steps taken in the elaboration of a project.

Cases of plagiarism will be dealt with according to standard procedures established by the corresponding authorities within the University.

Special Information

Each period will include a normal deadline for the presentation of the final position papers. Papers handed in within this deadline will be graded normally.

An extra hand-in moment will be offered for late papers, around the middle of the following academic period. Papers presented for this extra hand-in moment will only be evaluated in terms of pass (6,0/10,0) and fail (5,0/10,0 and under).

Remarks

Position papers will be evaluated on the following items:

- Has a question been clearly defined?
- Has the question been developed beyond its initial formulation?
- Does the paper acknowledge a state of the art, regarding this question?
- Has a position been taken, in relation to this state of the art?
- Is the paper coherent/concise?
- Does the paper follow a clear methodology?
- Are the sources pertinent, and well used?
- Is the language adequate?

Period of Education

Lectures take place during the first quarter of the period.

The second quarter of the period is used for the production of final position papers.

Individualized tutoring is offered upon request, to students who require extra help in the process of writing their papers, during this second quarter.

Course evaluation

The course will be graded on the basis of a final, position paper, worth 100% of the grade assignable to the Lecture Series. This position paper is expected to range between 2000-2500 words, and must be submitted before a specified deadline.

Only papers accepted and graded with a mark above 5,0/10,0 will be eligible for re-takes or further corrections.

Close attention must be paid to the fact that a passing grade in this course is necessary to apply for a Studio P4 presentation. Please note that the deadline for the presentation of these papers is indicated since the very beginning of the semester. This should allow you to plan the development of your essay without interfering with other deadlines. Conflicts with other courses should be negotiated with the Board of Examiners.

AR3MET010	Seminar Research Methods: Probing into Precedents	6
Responsible Instructor	Dr.ir. P.J. Teerds	
Responsible Instructor	Dr.ir. K.M. Havik	
Course Coordinator	Dr.ir. P.J. Teerds	
Instructor	Dr.ir. W.W.L.M. Wilms Floet	
Instructor	J.A. Mejia Hernandez	
Contact Hours / Week x/x/x/x	X/0/0/0	
Education Period	1 3	
Start Education	1 3	
Exam Period	1 2 3 4	
Course Language	English	
Course Contents	This seminar investigates relevant precedent-projects regarding the research and design developed in the Graduation Studio AR3MET100. In this investigation a range of architectural, cultural, political and physical issues are extensively addressed. The reference-projects therefore are not simply seen as architectural artefacts, but are urged and investigated against the background of their context. The studio challenges students to find appropriate methods for the analysis of these precedents, in order to see how these lessons also can be applied in the design at hand. Outside the known European context, students are invited to develop other positions, approaches and techniques, not only in Design (as is done in the Graduation Studio) but also in response to particular cultural, social, environmental, political and economic references.	
Study Goals	<p>Upon completion of the Master 1, 2, 3 & 4 studio trajectory the student:</p> <ul style="list-style-type: none"> - Has developed the skills in architectural design satisfying both aesthetic and technical / functional requirements. During the trajectory the complexity of the architectural design increases leading to a level fit for architectural practise. - During this trajectory skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology and human sciences. - Additionally, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and society's needs, including environmental aspects. This includes moral decision and argumentation skills regarding architectural ethics, especially when addressing social, political, environmental and technological issues. - During Master 1, 2, 3 & 4 process skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing. - Together with the training with regard to aspects of building technology, during the Master 1, 2, 3 & 4 process skills are acquired to incorporate an understanding of the design process with regard to structural design, materialisation of buildings, comfort and climate control. 	
Education Method	Studies of precedents. (Comparative) analysis, presentations, writing.	
Assessment	Through a series of presentations and writings	
Enrolment / Application	only if also enrolled for AR3MET100	
Period of Education	Quarter	
Leerstoel	Methods & Analysis	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR3MET020	Tutorial Research Methods: Fieldwork	3
Responsible Instructor	Dr.ir. P.J. Teerds	
Responsible Instructor	Dr.ir. K.M. Havik	
Course Coordinator	Dr.ir. P.J. Teerds	
Instructor	Dr.ir. K.M. Havik	
Instructor	J.A. Mejia Hernandez	
Instructor	O.J. Andrade Castro	
Contact Hours / Week x/x/x/x	0/X/0/0	
Education Period	2 4	
Start Education	2 4	
Exam Period	2 3 4 5	
Course Language	English	
Course Contents	In addition to the Graduation Studio AR3MET100, students will follow this workshop at the very site of the assignment. This seminar thus will comprise of a field trip to the studio's site location, particular assignments to that location, and fieldwork at the site. It also will encompass an active collaboration with students and teachers from the local architecture and/or art schools.	
Study Goals	Students will learn about and experiment with distinct approaches and tools to analyse the given site and to develop appropriate design interventions. The student -becomes acquainted with approaches bound to other cultural and social backgrounds -learns to conduct field work on site -learns to use and develop experimental methods of analysis and design -implements investigative and creative methods and develop urban or architectural strategies for a given site	
Education Method	Excursion, extensive fieldwork, experiments on site, collaboration with students from other universities	
Assessment	Presentation of the results of the workshop/Fieldwork	
Enrolment / Application	only together with AR3MET100	
Period of Education	Quarter	
Leerstoel	Methods & Analysis	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR3MET100	Methods and Analysis Graduation Studio: Positions in Practice	15
Responsible Instructor	Dr.ir. P.J. Teerds	
Responsible Instructor	Dr.ir. K.M. Havik	
Course Coordinator	Dr.ir. P.J. Teerds	
Instructor	Dr.ir. K.M. Havik	
Instructor	J.A. Mejia Hernandez	
Contact Hours / Week x/x/x/x	X/X/0/0	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Summary	The aim of the Graduation Studio of the Chair of Methods and Analysis is to merge analysis and design in an extensive way in order to face the difficult social, political, and spatial questions that dominate non-Western cities. The studio is particularly focussed on situations in either Latin America or Africa. The particular social, economic and political circumstances of these cities requires the development of new methods of research, analysis, decision-making and design. Students are challenged to define both the exact location of intervention, as well as the program of that very intervention, facing the particular circumstances of the city.	
Course Contents	The graduation studio of the Chair of Methods and Analysis aims to engage with pressing issues in developing territories, as well as with the increasing cross-cultural character of contemporary architectural practices. The studio challenges students to find appropriate methods of analysis and design in cultural contexts that are not their own. In such a condition of displacement, outside the known European context (and particularly in cities in Latin America or Africa), students are challenged to develop other roles, approaches and techniques as a response to particular cultural, social, environmental, political and economic conditions. Finding a balance between local cultures and techniques on the one hand, and global developments on the other, seems to be an important challenge. Against this cross-cultural background, students are requested to develop their own position and to find appropriate tools for analysis and design intervention.	
Study Goals	<p>Upon completion of the Master 1, 2, 3 & 4 studio trajectory the student:</p> <ul style="list-style-type: none"> - Has developed the skills in architectural design satisfying both aesthetic and technical / functional requirements. During the trajectory the complexity of the architectural design increases leading to a level fit for architectural practise. - During this trajectory skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology and human sciences. - Additionally, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and society's needs, including environmental aspects. This includes moral decision and argumentation skills regarding architectural ethics, especially when addressing social, political, environmental and technological issues. - The ability to employ moral sensibility, analysis, creativity, judgement, decision and argumentation skills regarding Architectural ethics and his/her future role as architect. - During Master 1, 2, 3 & 4 process skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing. - Together with the training with regard to aspects of building technology, during the Master 1, 2, 3 & 4 process skills are acquired to incorporate an understanding of the design process with regard to structural design, materialisation of buildings, comfort and climate control. <p>The graduation report demonstrates the student's ability to employ moral sensibility, analysis, creativity, judgment, decision and argumentation skills regarding Architectural ethics and his/her future role as architect. The individual graduation report should not only contain an elaboration regarding the Graduation Projects societal and disciplinary relevance, but has to also address design ethics and the way in which intercultural issues were addressed in the graduation project.</p>	
Education Method	The msc3 graduation studio Positions in Practice takes up the task to investigate new tools and methods to address the challenging paradox of historical presence on the one hand, and large new developments on the other. The studio does so by constantly shifting to different methods, in order to look at the site and the research question from various perspectives. Students will work in small groups on distinct research themes. During the course, different methods will be applied: from fieldwork to investigations by means of narrative or sections; from material explorations to the development of sequences of use; from soft-maps to public drawings.	
Course Relations	Mandatory courses adjoining this graduation studio are: AR3MET010 (Probing into Precedents) and AR3MET020 (Fieldwork)	
Assessment	<p>For this course the process is as important as the final design. The students therefore need to present not only the project or the final results, but also should present and reflect upon intermediate findings. The tutors will assess, during the P1 and P2 the way students understand and apply different methods offered and developed. Particular attention will be given to the question how the student succeeds in using methods as offered in the studio, and how the student is able to formulate particular design hypothesis based on these exercises. The consistency of the project on a methodological, architectural and technical level is crucial for the final assessment.</p> <p>These P1 and P2 presentations consist of presentations and an individual graduation report, which contains the research and design work. See for this report the Graduation Regulations. After successfully finishing the MSc 3 studio, the student will enrol in the MSc 4 studio in order to elaborate the MSc 3 design project.</p>	
Remarks	Students enrolled in the course should find funding to support the cost of the field trip (travel, accommodation and food), which is variable according to the studio's site location (from 1,000-2,000 Euros).	
Period of Education	Semester	
Concept Schedule	Studio Meetings will be on Fridays	
Leerstoel	Methods & Analysis	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

Year	2018/2019
Organization	Architecture
Education	Master Architecture, Urbanism & Building Sciences

MSc 4 MA

AR4MET100	Methods and Analysis Graduation Studio: Positions in Practice	30
Responsible Instructor	Dr.ir. P.J. Teerds	
Responsible Instructor	Dr.ir. K.M. Havik	
Course Coordinator	Dr.ir. P.J. Teerds	
Instructor	Dr.ir. K.M. Havik	
Instructor	J.A. Mejia Hernandez	
Contact Hours / Week x/x/x/x	0/0/X/X	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	MSc3 AR3MET100; AR3MET010, AR3MET020	
Summary	<p>The graduation studio of the Chair of Methods and Analysis aims to engage with pressing issues in developing territories, as well as with the increasing cross-cultural character of contemporary architectural practices.</p> <p>The studio challenges students to find appropriate methods of analysis and design in cultural contexts that are not their own. In such a condition of displacement, outside the known European context (and particularly in cities in Latin America or Africa), students are challenged to develop other roles, approaches and techniques as a response to particular cultural, social, environmental, political and economic conditions. Finding a balance between local cultures and techniques on the one hand, and global developments on the other, seems to be an important challenge. Against this cross-cultural background, students are requested to develop their own position and to find appropriate tools for analysis and design intervention.</p>	
Course Contents	<p>The graduation studio of the Chair of Methods and Analysis aims to engage with pressing issues in developing territories, as well as with the increasing cross-cultural character of contemporary architectural practices.</p> <p>The studio challenges students to find appropriate methods of analysis and design in cultural contexts that are not their own. In such a condition of displacement, outside the known European context (and particularly in cities in Latin America or Africa), students are challenged to develop other roles, approaches and techniques as a response to particular cultural, social, environmental, political and economic conditions. Finding a balance between local cultures and techniques on the one hand, and global developments on the other, seems to be an important challenge. Against this cross-cultural background, students are requested to develop their own position and to find appropriate tools for analysis and design intervention.</p>	
Study Goals	<p>Upon completion of the Master 1, 2, 3 & 4 studio trajectory the student:</p> <ul style="list-style-type: none"> - Has developed the skills in architectural design satisfying both aesthetic and technical / functional requirements. During the trajectory the complexity of the architectural design increases leading to a level fit for architectural practise. - During this trajectory skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology and human sciences. - Additionally, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and society's needs, including environmental aspects. This includes moral decision and argumentation skills regarding architectural ethics, especially when addressing social, political, environmental and technological issues. - the ability to employ moral sensibility, analysis, creativity, judgement, decision and argumentation skills regarding Architectural ethics and his/her future role as architect. - During Master 1, 2, 3 & 4 process skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing. - Together with the training with regard to aspects of building technology, during the Master 1, 2, 3 & 4 process skills are acquired to incorporate an understanding of the design process with regard to structural design, materialisation of buildings, comfort and climate control. <p>The graduation report demonstrates the students ability to employ moral sensibility, analysis, creativity, judgment, decision and argumentation skills regarding Architectural ethics and his/her future role as architect. The individual graduation report should not only contain an elaboration regarding the Graduation Projects societal and disciplinary relevance, but has to also address design ethics and the way in which intercultural issues were addressed in the graduation project.</p>	
Education Method	<p>The MSc4 Graduation Studio Positions in Practice continues to work on the analysis executed in the preliminary MSc3 studio, by focussing on the development of a (possible) spatial intervention. It takes up the task to investigate new tools and methods to address the challenging paradox of the existent environment, the data collected through the research, as well as the human capacity to imagine the new. The studio does so by constantly shifting to different methods, in order to look at the site and the information from different angles and various perspectives.</p>	
Assessment	<p>For this course the process is as important as the final design. The students therefore need to present not only the project or the final results, but also should present and reflect upon intermediate findings. The tutors will assess, during the P1 and P2 the way students understand and apply different methods offered and developed. Particular attention will be given to the question how the student succeeds in using methods as offered in the studio, and how the student is able to formulate particular design hypothesis based on these exercises. The consistency of the project on a methodological, architectural and technical level is crucial for the final assessment.</p> <p>Examination through P3, P4 and P5 presentations and an individual graduation report, that contains the research and design work as well as an individual reflection upon the project and process. See also the Graduation Regulations.</p>	
Period of Education	Semester	
Leerstoel	Methods & Analysis	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

HA

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

MSc 1 HA

AR1A060	Delft Lectures on Architectural Design	3
Responsible Instructor	Dr.ir. S. Komossa	
Course Coordinator	Dr.ir. E.H. Gramsbergen	
Instructor	Dr.ir. E.H. Gramsbergen	
Instructor	Dr.ir. P.J. Teerds	
Instructor	Ir. L.G.K. Spoormans	
Instructor	Dr.ir. B.M. Jurgenhake	
Instructor	Ir. M.J. Smit	
Contact Hours / Week x/x/x/x	2 hours per week	
Education Period	1 3	
Start Education	1 3	
Exam Period	1 2 3 4	
Course Language	English	
Course Contents	<p>The Delft Lectures on Architecture Design highlights current issues of the architecture discipline against the background of the larger societal conditions that have an inevitable impact on the practice of design. Contemporary positions in architecture practice and theory will be discussed. Full professors, associate professors and researchers of the Delft Faculty of Architecture will address key contemporary topics, and investigate historical models and theoretical arguments while discussing the latest architecture projects as well as seminal cases.</p>	
Study Goals	<p>Key questions concern: - where do architects stand and what can they do? - which positions and practices are developed by architects? - what strategies and approaches were and are relevant?</p> <p>After completion of the course: Building on the architectural design courses of the Bachelor, the student has gained knowledge of relevant issues of the discipline of architectural design, practice and its body of knowledge, including the main theoretical concepts and models. The student is able to reflect critically on ethical positions taken by lecturers and expressed by their practises.</p>	
Education Method	<p>The student: - Has appropriate knowledge of the main issues of the discipline of architectural design, practice and its body of knowledge, including the main theoretical concepts and models. - Is aware of the larger historical development of the discipline of architectural design in relation to the main theoretical concepts and models deployed of architecture, art and technology, their application in specific cases as presented in the lecture series addressing current issues of architectural practice and society. - Is able to interpret the architectural design production, both historically and current, in terms of the concepts and models of design as discussed in the lecture series; this includes the larger context of the manifold relations between architecture, the city and society and the relations between design concepts, building production and materialization.</p>	
Assessment	<p>Double lectures (2 x 45 minutes) by full professors, associate professors and researchers of the department of Architecture and other faculty members. Lectures are concentrated in the first half of the semester, during 7 weeks. Generally, the double lectures start with introducing the 'issue', after which the 'architectural positions' are discussed. The lecture coordinators are present to introduce the speakers and the topic, and to moderate questions from the students.</p>	
Special Information	<p>The format of the examination is a digital exam with a duration of three hours, which means the examination is taken place in a specifically equipped examination hall on the campus. The maximum marking period is 10 work days.</p>	
Period of Education	Quarter	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1A065	Delft Lectures on Architectural History	3
Responsible Instructor	Prof.dr.ing. C.M. Hein	
Responsible Instructor	Dr. H.D. van Bergeijk	
Course Coordinator	Dr. H.D. van Bergeijk	
Contact Hours / Week x/x/x/x	X/X/X/X	
Education Period	2 4	
Start Education	2 4	
Exam Period	2 3 4 5	
Course Language	English	
Course Contents	This course provides a deepening of a particular part of the knowledge that the student has gained in the earlier stages of his curriculum. It consists of a lecture series of Capita Selecta dealing with the modern architectural production from 1850 till about 1940. This year the course will focus especially on the birth of modernism in the periode from the beginning of World War I till the collapse of the stock market in 1929. De Stijl-artists and the Bauhaus will be the core of the course but also figures like Dudok, Stam and others will receive due attention. We will try to explore how the abolition of history led to a new concept of society and the underlying concepts of civitas. A belief in the machine produced also a new ethics that will have an influence on the development of society in the 20th and 21st century.	
Study Goals	The student - has acquired a sufficient framework to place and value different contributions to the history of the discipline and society in general. - has gained insights on a specific theme and has deepened his knowledge - has an understanding of some of the tools of the architect from a historical point of view. - knows how to apply certain terms and is critical to their meaning - can relate to the work of architectural historians - is capable of giving a motivated and well-argued answer to the questions - has an idea of the importance of the ethical position of the architect and critic in relation to certain important issues	
Education Method	Lectures Readings	
Literature and Study Materials	All students should read: - Michael White, De Stijl and Dutch Modernism (Manchester University Press).	
Assessment	Further readings will, if necessary, be provided through Blackboard. Exam with essay questions in which the students exposes his knowledge. The student can choose from the questions. The answer to an essay question should be given in about 500 words. The knowledge that the students shows should be related to his readings and the ideas that he has formed during the course. Students are expected to challenge themselves.	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1A075	Delft Seminars on Building Technology	6
Responsible Instructor	Prof.ir. M.F. Asselbergs	
Responsible Instructor	Ir. B. Gremmen	
Course Coordinator	Ir. B. Gremmen	
Contact Hours / Week x/x/x/x	40 hours per quarter	
Education Period	1 3	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	<p>We expect that you followed the bachelor in Delft or a similar education elsewhere in the world. You have gained knowledge and practices in the next topics:</p> <ol style="list-style-type: none"> 1. constructional and structural detailing (1:20/5/2/1) 2. Structures/constructions in steel, wood and concrete 3. Climate issues, ventilation, heating and cooling <p>Literature list for International students, master Architecture We take the content of these books as read before participating.</p> <p>Components and connections Author: Meijs, Maarten Contributor: Knaack, Ulrich Publisher: Birkhäuser Publish date: 2009 Document type: book ISBN: 978-3-7643-8669-6 Subtitle: principles of construction Classification: UJA / Building structures: general Chapters all</p> <p>Building construction illustrated Author Ching, Francis D.K Publisher Wiley Publish date 2008 Document type book ISBN 978-0-470-08781-7 Edition 4th ed. Chapters all</p> <p>Structures Author Schodek, Daniel L. Publisher Pearson/Prentice Hall Publish date 2008 Document type book ISBN 0-13-178939-2 Edition 6th ed. Chapters 1,2,3,4,6,7,9,10,13,14,15,16,</p> <p>Climate and Architecture Author Dahl, Torben Publisher Routledge Publish date 2010 Document type book ISBN 978-0-415-56308-6 Edition 1th ed. Chapters all</p> <p>Building Physics Author Linden, A.C. van der Publisher Thiemeleuhenhoff Publish date 2013 Document type book ISBN 978-9006-95155-4 Edition 1th ed Chapters all</p>	
Course Contents	In this course you will make a new technical design for a selected fragment of a case study building or a fragment. In two posters (A0) you will present your new design in technical drawings 1:20 and 1:5/1. Next you will explain the structural design, climate design and facade design in informative diagrams, illustrated with photographs and sketches.	
Study Goals	<p>The student:</p> <ol style="list-style-type: none"> 1. Is able to use research skills in technological design issues and is able to formulate an accurate guiding theme or position, that guides the design process 2. Is able to recognize technical design problems and is able to select -in a substantiate manner- the best solution from a series of (self) formulated possible design alternatives 3. Is able to interpret and integrate the aspects of structure design, construction (facade) design and climate design in a design of a building 4. Is able to provide innovative design solutions especially with regard to the use of energy and providing comfort in building design 5. Is capable of drawing and presenting architectural and technical aspects of a design in a coherent and clear manner 	
Education Method	work groups (seminars)	
Books	<ul style="list-style-type: none"> - Millais, M., 'Building structures, a conceptual approach', London, 1999 - Jones, B., Peter, 'Modern Architecture Through Case Studies', Oxford, 2002 - Daniels, 'Advanced Building Systems, a technical guide for architects and engineers', Basel, 2003 - Frampton, 'Studies in Tectonic Cultures', The MIT Press, 1995 - Ronner, Kolliker, Rysler, 'Baustuktur', Basel, 1995 - Schittich, C., 'In detail: building skins: concepts, layers, materials Basel', Basel, 2001 - Watts, A., 'Modern Construction Handbook', Wien, 2001 - Watts, A., 'Modern Construction Facades', Wien, 2005 	

<p>Assessment</p>	<p>- Bachman, L.R., 'Integrated Buildings', Hoboken Wiley, 2003 - Cook, P., Primer, 'Emancipation of Structure', London, 1996 - Deplazes, D., 'Architektur Konstruieren', Basel, 2005 - Addis, B., 'Building, 3000 years of Design Engineering and Construction', London, 2007</p> <p>The examination will take place in the form of a poster (pin-up) presentation in the studio spaces. Examination will only take place during the final presentations of the course. The date of the final presentation will be announced in the seminar handout. You will receive a mark between 1 and 10 with the following meaning:</p> <p>10 Excellent 9 Very good 8 Good 7 Quite sufficient work 6 Sufficient</p> <p>5,5 Almost sufficient, can be corrected with a repair task without tutoring. Only minor deficiencies can be fixed as a repair task, decided by the tutor. Must be finished within two weeks after the final presentation. Second repair is not possible. Your work will be marked with an V.If the repair does not higher the grade up to V you will have to redo the course.</p> <p>in the case of a delayed evaluation (by request of the study counsellar), the figure will be a maximum of 6.</p> <p>5 and lower, Unsufficient, you have to redo the course next semester</p> <p>NV in case you did not finish the course</p>
<p>Special Information</p> <p>Period of Education</p> <p>Concept Schedule</p>	<p>The maximum marking period is 10 work days.</p> <p>Quarter</p> <p>Q1: In the weeks 1.1 up to and including week 1.6 of the 1st quarter you need to reserve in time Q3: In the weeks 3.1 up to and including week 3.5 of the 3rd quarter you need to reserve in time</p> <p>Tutoring: 40 hours Independent study: 128 hours</p> <p>Seminars will take place on Tuesdays and Fridays, mornings or afternoon. Final presentation will take place on the Friday of the week 1.6 (Q1) and 3.5 (Q3)</p>
<p>Leerstoel</p> <p>Course evaluation</p>	<p>Architectural Engineering</p> <p>For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/</p>

AR1AR010	Heritage and Architecture: Methodologies of Architectural Reuse	3
Responsible Instructor	Ir. J. Roos	
Course Coordinator	Ir. J. Roos	
Instructor	Ir. J. Roos	
Instructor	Dr.ir. H. Zijlstra	
Contact Hours / Week x/x/x/x	2 hours per week	
Education Period	1 3	
Start Education	1 3	
Exam Period	2 3 4 5	
Course Language	English	
Expected prior knowledge	bachelor	
Course Contents	The course provides students with several theories and methods of design and basic theoretical framework about the designing activity of interventions. A critical reflection on the state of the art in relation to the possibilities and consequences of intervention. As long as buildings and cities have been preserved on account of their historical and/or cultural value the debate raged on to how this should be realised in practice. Integral solutions to functional, aesthetic and cultural issues, at both building and urban development/landscape level, are explored. Each week a lecture with a different theme gives a platform for discussion and reflection for the research assignments.	
Course Contents Continuation	in semesterbook	
Study Goals	The student: - Has gained specific knowledge in the field of theories in architecture, technologies and human sciences, which enable him/her to link theories and design skills within the design studio in an adequate way. - Has developed an understanding of how people perceive spaces, their positioning, proportions and materialisation and the actual use of buildings, spaces and spaces in-between them. - Has developed an understanding of how a design brief can be related to the actual needs of society at a given moment in history and by doing so, understanding the societal relevance of architecture.	
Study Goals continuation	in semesterbook	
Education Method	Lectures Tutorial Self study	
Literature and Study Materials	Lectures and course manual available via Brightspace	
Reader	in semesterbook	
Assessment	essay	
Exam Hours	tentamen is essay	
Special Information	The maximum marking period is 10 work days.	
Elective	Yes Yes	
Tags	Challenging Challenging Design Design Didactics Didactics Group Dynamics/Project Organisation Group Dynamics/Project Organisation	
Period of Education	Semester fall and spring 2018-2019	
Leerstoel	Heritage & Architecture	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1AR011	Heritage and Architecture Design Studio: Architectonic Design	12
Responsible Instructor	Ir. W. Willers	
Course Coordinator	Ir. W. Willers	
Instructor	Ir. A.W. Hermkens	
Instructor	Ir. W. Willers	
Contact Hours / Week x/x/x/x	8 hours per week	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Summary	The design assignment focuses on the intervention at existing buildings or ensembles to meet requirements of contemporary and future use. The design process will be guided by exploring design possibilities and architectural consequences of the design.	
Course Contents	<p>The object of this Heritage & Architecture studio is the architectural design for the re-use of a building or building-ensemble to meet requirements of contemporary and future use.</p> <p>A transformation framework will be made by the interpretation of the analysis of the urban context, the building and the program requirements. Various aspects of designing in existing built structures are investigated by studying reference projects and literature.</p> <p>By working on different scale-levels a coherent design will be made. At atelier meetings different aspects like relation existing new, urban context, functionality, spatial quality, technical aspects, material aspects will be discussed.</p> <p>Different presentations will help students to develop their presentation skills.</p> <p>The current debate of transformation and intervention with topics like authenticity, sustainability, layers of history, and so on is very present during this course on every single scale.</p>	
Study Goals	<p>Upon completion of the Master 1 design project the student is able to:</p> <ul style="list-style-type: none"> - interpret cultural values on urban, architectural and technical scale and create a transformation framework, - translate a transformation framework to a design strategy, and a design strategy to an elaborated design, - incorporate aspects in the field of architectural history and architectural theory, art, society's needs, human sciences and environmental aspects. - make a design satisfying functional, aesthetic and technical requirements, - position the project in the discourse, - explain the architectural design during a presentation by combining oral, written and graphic media (e.g., drawings, models) 	
Education Method	Design coaching, 4-8 hours counseling per studio during educational weeks, total 112 hours. Self study: total 224 hours.	
Literature and Study Materials	Will be delivered by the tutor and/or coordinator, or via Brightspace	
Assessment	Research booklet Presentation at the end of the semester	
Special Information	Presence at the first meeting is mandatory. For the assessment the presence during the course and the overall design process will be taken in consideration.	
Period of Education	Semester	
Leerstoel	Heritage & Design	
Minimum aantal deelnemers	12, minimum group 8 students	
Maximum aantal deelnemers	48	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1AR080	Heritage and Architecture: Technology of Conservation	3
Responsible Instructor	Dr. B. Lubelli	
Responsible Instructor	Dr.ir. W.J. Quist	
Course Coordinator	Dr. B. Lubelli	
Instructor	Ir. F.W.A. Koopman	
Instructor	Dr.ir. W.J. Quist	
Instructor	Prof.ir. R.P.J. van Hees	
Contact Hours / Week x/x/x/x	4 hours per week	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	2 4 5	
Course Language	English	
Expected prior knowledge	Completed Bachelor course.	
Summary	<p>This course on Building Conservation (technology of conservation) is focused on:</p> <ul style="list-style-type: none"> - traditional building materials and their properties - better understanding of degradation of ancient materials and structures - possibilities, limits and risks of conservation materials and techniques 	
Course Contents	<p>The course aims at giving the future architect the necessary tools for a successful and respectful restoration with the use of materials and techniques that are compatible with the historic building.</p> <p>The course starts from a broader framework for modern conservation, including concepts like reversibility and compatibility. It deals with properties of materials and explains degradation processes and decay of materials. Materials like stone, brick, mortars, plasters, concrete, timber and iron are dealt with, as well as conservation and repair techniques ranging from facade cleaning, anti-graffiti and repair mortars to foundation repair of wooden piles and cathodic protection of iron.</p>	
Study Goals	<p>Exit qualification:</p> <ul style="list-style-type: none"> - Allowing the architect to play a central role in the decision process that constitutes the basis of successful preservation, restoration and re-use of historic buildings. <p>Subgoals:</p> <ul style="list-style-type: none"> - Allowing the architect to make a sound assessment of the state of conservation of a historic building. - Allowing the architect to deal in a professional way with other parties in the conservation process, like building contractors, craftsmen, researchers and producers. - Providing the architect with the necessary knowhow on traditional materials and on possibilities and limitations of conservation materials and techniques. 	
Education Method	Lectures: 28 hours Independent study: 56 hours Lectures on Thursday afternoon	
Course Relations	The content of the course is closely related to the content of the complete MSc 1 Heritage & ARchitecture studio, AR0014 and AR0015.	
Literature and Study Materials	Reader, including Stone Atlas, Overview Historic Mortars, several conservation techniques as well as handouts of all lectures (distributed through blackboard).	
Assessment	Written examination	
Special Information	The maximum marking period is 15 work days.	
Period of Education	Semester	
Leerstoel	Heritage & Technology	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

Starting Course MSc1

ARX071	Workshops Faculty of Architecture and the Built Environment	1
Responsible Instructor	Dr.ir. R. Cavallo	
Contact Hours / Week x/x/x/x	X / 0 / 0 / 0	
Education Period	1	
Start Education	1	
Exam Period	none	
Course Language	English	
Course Contents	<p>All new MSc students of the Faculty of Architecture and the Built Environment will start the academic year 2018-2019 with a 3-day workshop programme on 30 & 31 August and 3 September 2018.</p> <p>The programme is developed in cooperation with TPM colleagues of the section "Ethics & Philosophy of Technology". With a mix of lectures, workshops and sessions guided by teachers of the faculty, you will be introduced to (design) ethics, scientific integrity and intercultural communication.</p> <p>With these workshops you will make a first start to cover the ethics engineering learning goals of the MSc programmes. Further, we wish to enhance the interaction between all new students, both Dutch and International, and to introduce you to settings, methods and procedures of the faculty.</p> <p>Participation in the workshops is mandatory for all students starting their MSc 1 programme in September.</p>	
Study Goals	- The student has a basic understanding of moral sensibility, moral analysis skills, moral creativity, moral judgement skills, moral decision-making skills and moral argumentation skills.	
Education Method	Lectures, workshops, role playing game, assignment	
Assessment	Workshops attendance Assessment: V (passed) or NV (failed)	
Special Information	<p>The academic year will start with a three day workshop programme. With a mix of lectures, workshops and sessions guided by teachers of the faculty, you will be introduced to (design) ethics, scientific integrity and intercultural communication. With these workshops you will make a first start to cover the ethics engineering learning goals of the MSc programmes. Further, we wish to enhance the interaction between all new students, both Dutch and International, and to introduce you to settings, methods and procedures of the faculty. The workshops will lay the foundation for your master studies. It is highly recommended for both Dutch and International students to participate in this programme and you will be granted 1 EC after following the whole programme. This EC will be used in your electives list Master 2/3.</p> <p>For more information see website: https://www.tudelft.nl/studenten/faculteiten/bk-studentenportal/onderwijs/master-of-science/workshops-master-students/</p>	
Period of Education	3 days	

Year	2018/2019
Organization	Architecture
Education	Master Architecture, Urbanism & Building Sciences

MSc 2

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

Compulsory

AR2A015	Delft Lectures on Architectural Sustainability	3
Responsible Instructor	Ir. P.G. Teeuw	
Responsible Instructor	Prof.dr.ir. A.A.J.F. van den Dobbelsteen	
Course Coordinator	Ir. P.G. Teeuw	
Contact Hours / Week x/x/x/x	14 hours per quarter	
Education Period	1 3	
Start Education	1 3	
Exam Period	1 3 4	
Course Language	English	
Required for	Compulsory MSc2 course for the variant (track) Architecture of the master Architecture, Urbanism and Building Sciences.	
Course Contents	This lecture series emphasizes the possibilities of architecture itself as a means to promote sustainable development. Architecture as a tool to create a more sustainable world. Rather than focus on added sustainable technologies, this course searches for architects possibilities to design good sustainable architecture and a smart organisation. A 'sustainability' driven design attitude should become a second nature for students.	
Study Goals	The student: - Has an overall understanding of the factors associated with: sustainable development related to architectural design. - Has an understanding of the architects responsibilities towards sustainable design. - Is able to position him or herself in matters concerning the relation between sustainable development in general and architecture in particular. - Is capable to formulate possible architectural solutions for building-related environmental issues and has an understanding of their social, ethical and economic dimensions.	
Education Method	Lectures and debate	
Literature and Study Materials	<ul style="list-style-type: none"> - Reader Delft Lectures on Architectural Sustainability; edition course year 2018-2019, September 2018 (Brightspace) - Jón Kristinsson, Integrated Sustainable Design, Delft/Deventer 2012 - Required reading for the exam: Chapters 2, 3, 4, 5, 8, 9, 10 (Bouwshop) - Anke van Hal, The merger of interests, Breukelen 2009 - Required reading for the exam: up to and including page 17 (Download from the internet) - Anke van Hal, The merger of interests 2.0, Breukelen 2014 - Required reading for the exam: Chapter II and III (Download from the internet) - Some parts of the website http://www.urbangreenbluegrids.com as links included in the reader; edition course year 20182019, September 2018 (Brightspace) - Some articles of the book Circulariteit op weg naar 2050? red. Peter Luscuere 2018 (download from the internet)' pages indicated in the reader; edition course year 20182019, September 2018 (Brightspace) 	
Assessment	Written exam	
Special Information	The maximum marking period is 15 work days.	
Period of Education	Quarter	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

Compulsory Choice

AR2A010	Architectural History Thesis	6
Responsible Instructor	Prof.dr.ing. C.M. Hein	
Course Coordinator	Prof.dr.ing. C.M. Hein	
Instructor	Drs. C.A. van Wijk	
Instructor	Dr.mr. E. Korthals Altes	
Instructor	Dr. H.D. van Bergeijk	
Instructor	Dr. M.T.A. van Thoor	
Instructor	Dr. R.J. Rutte	
Contact Hours / Week x/x/x/x	10 hours per quarter	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	Research writing:	
	<p>The student:</p> <ul style="list-style-type: none"> - Demonstrates a general historical understanding of the architecture profession and the role of the architect in society. - Can apply broad knowledge of the history and theory of architecture and related art forms and the humanities, as well as of the social and cultural developments relevant to architectural design. - Has developed appropriate academic writing skills. For TU Delft BSc graduates, a finished AC3 paper should have provided them with skills in planning and developing a research project, critical and responsible use of sources, and logical argumentation. These skills will be applied and expanded during this course. <p>Language skills:</p> <ul style="list-style-type: none"> - The student has appropriate English language skills. <p>If in doubt, the student should consult the OpenSourceware made available through the following links:</p> <p>https://learn.saylor.org/course/view.php?id=42</p> <p>https://learn.saylor.org/course/view.php?id=43</p> <p>These links lead to the English courses offered for free to all by the online Saylor Academy.</p> <p>Please Note: Any issues regarding research skills or language capacities will have to be addressed before the start of this course, and will require serious commitment by the student. The language courses are extensive and the student will not be able to combine them with the normal thesis workload during the semester.</p>	
Course Contents	<p>The history thesis (geschiedeniscriptie) is a required independent research project in the Master 2. It may deal with architecture, urbanism, the visual arts, design and photography, film or literature. It provides students the opportunity to hone their research skills on a historical topic. If the focus is on architecture, the research can also be of a typological kind, for example on a particular type of building, preferably not through the centuries but concentrating on a particular period or aspect. If urbanism is the subject matter, the themes may vary from the regional to the neighborhood scale, design and decision making processes, the role of politics, theories (ranging from functionalism to morphological approaches, from programmatic aspects to ideas about the creative classes and gentrification). It may also be a topographical / territorial topic, where appropriate in combination with other aspects. Finally it can regard also the investigation of an abstract topic: rhythm, scale, theory of proportions, ornamentation, eclecticism and monumentality, etc. in which an historical point of view is dominant.</p> <p>Using mixed methods from archival research and oral history to close reading of visual and textual analysis students critically examine a topic of their own choosing, producing a substantial research paper based on a clear historical perspective. This analytical and conceptual experience forms an important complement to the design&#8208;based education of the master in architecture. Writing a history thesis offers students a unique opportunity to pursue a research on a specific topic and requires students to work independently. Building on historical knowledge and research skills gained in introductory and advanced courses, students focus on primary materials and pursue an original question. They develop a complex argument and grapple with multiple data sets and interpretations. Collective and individual meetings with tutors provide a framework for the production of an original, well&#8208;written essay of about 9000 words. Students need to be familiar with library catalogues and search engines. The essays are required to demonstrate superior and consistent understanding of scientific writing (i.e. footnotes, bibliography, front and back matter). topics have to be approved by the supervisor who has to be a member of the Chair History of Architecture and Urban Planning. The topic has to be discussed with the supervisor prior to commencing. Sometimes teachers will offer a workshop.(See Blackboard).</p>	
Study Goals	<p>Learning objectives</p> <p>After completion of the course the student:</p> <ul style="list-style-type: none"> - Exhibits in depth knowledge regarding a specific field of study within architecture, urbanism, art, and or media. - Is able to plan and develop a scientific research project. - Is able to develop a critical and logical argumentation from a scientific research question based on primary sources. - Is able to evaluate, interpret and make proper reference to available sources. - Is able to build on existing knowledge and develop new knowledge. 	
Education Method	<p>Thesis supervision: 8 hours</p> <p>Independent study: 158 hours (a day in the week has been reserved for working on the thesis)</p>	
Literature and Study Materials	Blackboard	
Assessment	Thesis (For more information - length, references, use of literature and other sources - see blackboard).	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Quarter 1 and quarter 3	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR2AT030	Architecture Theory Thesis	6
Responsible Instructor	Dr.ir. H. Sohn	
Course Coordinator	Dr.ir. H. Sohn	
Instructor	Dr. S.A. Read	
Instructor	Dr.ir. A. Radman	
Instructor	Dr.ir. H. Sohn	
Instructor	Dr.ir. S. Kousoulas	
Contact Hours / Week	14 hours per quarter	
x/x/x/x		
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Required for	As per MSc2 Architecture program requirements.	
Expected prior knowledge	Students are expected to have developed a specific interest in Architecture Theory, which includes previous reading and some research in this field. Previous writing on theoretically driven topics is highly recommended.	
Summary	The Architecture Theory Thesis course offers students the possibility to explore and engage the rich conceptual and theoretical dimensions of architecture through the development of theoretical arguments and intensive research on a topic of their own choice. A free thematic allows students to conduct individual, independent research on issues and concerns that matter to them, thus offering them the opportunity of deepening their knowledge and expertise on topics which are close to their interests and passions. The focus in all cases, however, will be placed on developing the theoretical aspects of these topics.	
Course Contents	The Architecture Theory Thesis course is designed to guide participating students through the different stages of academic research and writing, aiding them in the identification of the theoretical dimensions and frameworks of their selected research topic and 'problématique', offering them relevant and timely feedback and support on their progress throughout the term. The tutors involved in this course assist students in the formulation of sound problem statements, research questions and argumentation lines towards the production of qualitative theoretical Masters' Theses.	
Study Goals	Although students are required to bring their own research passions and topics of interest to the course, we encourage students to orient these topics within two general domains or areas of specialization: 1. Architecture and political economy: Dealing primarily with research on the systemic and scalar complexities of (power) relations, forces, flows and networks, focusing primarily on their impact on -and relationship to- the (built) environment. Further angles include research on geo-politics, bio-politics and contemporary political-economy through critical and speculative investigations on the spatial, social and material transformations and consequences that these unleash across multiple scales, levels and domains. Possible themes, topics and approaches are: critical/speculative approaches to contemporary urbanisation; territorial & material flows: refuge & migration; metabolic/planetary urbanism; socio-material and spatial practices: resistance, subversion, transgression, social movements; etc. Key thinkers: David Harvey, Neil Smith, Peter Marcuse, Neil Brenner, Henri Lefebvre, Erik Swyngedouw, Andy Merrifield, Matthew Gandy, Manuel Castells, Saskia Sassen, Michel Foucault, Slavoj Zizek, Loic Wacquant, among many others. 2. Architecture and libidinal economy: Research topics dealing primarily with issues related to matter and image, and the means and techniques of production in architecture. Mainly focused on pluralist approaches and speculative theory methodologies, and philosophical inquiries. Themes include the social effects and human affects of technological developments on the mode and means of conceiving, developing and producing cultural objects, artifacts and/or architecture. In other words, research on the material and immaterial processes and productions of things and images and their relation to experience, perception and cognition. Key words or concepts: technology, media, materialism/new-materialism, radical empiricism, speculative realism, ecological thinking, affordance, biopower/noopower, affect theory, complexity theory, geometry, space, time, memory, perception & experience of space. Key thinkers: Gilles Deleuze, Felix Guattari, James J. Gibson, Brian Massumi, Manuel DeLanda, Katherine Hayles, Henri Bergson, Martin Heidegger, Bruno Latour, Katherine Malabou, Jane Bennett, Karad Barad, Rosi Braidotti, Stanford Kwinter, among many others.	
Education Method	Upon completion of this theory course the participants will: have a solid base of knowledge on recent literature in the humanities and the social sciences and their relation to architecture practice and theorization. the appropriate knowledge of the theory of architecture and related art forms as well as of the social and cultural streams of relevance for architectural design. have developed in-depth knowledge regarding the specific field of study relating to architecture, urbanism, art, and/or media. have acquired knowledge and practice on academic research and writing skills, and will be able to apply these in theoretical argumentation and the formation of discourse. have developed a consistent and cohesive research methodology by distinguishing between a problem statement, an argumentation paper and fully developed research paper will have acquired understanding of the societal, cultural, technological and ethical dimensions and implications of conducting research on architecture	
Education Method	The Architecture Theory Thesis course is based primarily on independent self-study. It nevertheless offers students sufficient and qualitative contact-time at the early stages through the Introduction Lecture and two group meetings in which students are encouraged to introduce and discuss their topics and theoretical frameworks with their peers and tutors. The exchange of peer-reviews and feedback at this stage offers students a solid point of departure. After the group meetings in the beginning of each term, students develop their work independently. The progress is checked and discussed at regular intervals, guidance is offered through written feedback from the tutors, followed by individual consultation moments, when students can discuss their work with tutors in person. Since this course is based on a self-study format, feedback and guidance are offered on the progress made by the students, who take full ownership of their work. Tutors assist, encourage and advise students in their research and writing, and accompany them throughout the development of their Theses within one semester. Preparatory Phase: Self-study	

	<p>Formulation of Abstract</p> <p>Introductory Phase: Contact-time Introduction Lecture: course introduction Group meetings (2): tutor-led seminar-type discussions and peer-reviews Problem Statement & Research Questions Preliminary Reading List</p> <p>Research-Writing Phase: Self-study periods First & Second Drafts Feedback & Consultations Final Thesis</p> <p>For more information please contact the course coordinator.</p>
Course Relations	<p>This course is a required choice-course for MSc1/2 curriculum that awards 6 ECTS upon successful completion.</p> <p>Accreditation is required for P2 registration, hence we urge students to complete this course prior to MSc3 enrolment!</p> <p>This course is highly compatible with the Architecture Theory Design Studio Agential Materialisms (AR2AT020) offered only in Spring terms Q4. Students wishing to follow both courses in one term are asked to enrol in the assigned period Q1/3 and Q4.</p> <p>For questions please contact the course coordinator.</p>
Literature and Study Materials	<p>Part of the objectives of this course is for students to learn how to build a detailed and relevant reading list and research bibliography based on their individual thesis topic. Hence, students will largely define their consulted first and secondary sources.</p> <p>Tutors will recommend relevant readings and sources during the feedback phases of the course, and upon request by students.</p>
Prerequisites	<p>As per MSc2 Architecture program requirements.</p>
Assessment	<p>This course will be assessed via a series of deliverable assignments: Problem Statement First and Second Progress Drafts Final Thesis</p> <p>For evaluation criteria and rubrics please consult the course information on Brightspace or contact the course coordinator.</p>
Enrolment / Application	<p>This course has limited enrolment and special requirements!</p> <p>All interested students are requested to submit a tentative thematic research proposal (motivational abstract) to the Architecture Theory chair in order to determine the theoretical viability of the proposal in advance.</p> <p>Research proposals should be uploaded on Brightspace and sent via email to the AT chair office, by the announced deadline. Students will receive an email after registration to the course. The abstract deadline will always be prior to the beginning of the course.</p> <p>A concept form for the tentative thematic research proposal and further information are available upon request.</p> <p>Send us an email to: AT-MS-C-BK@tudelft.nl</p> <p>Note: The submission of a proposal does not guarantee acceptance into this course. Proposals that are not theoretical or that lean on clearly historical methods, will not be selected, and the students will be informed prior to the beginning of the course.</p> <p>Note: Due to the seminar structure of this course students must be able to attend the introductory information lecture, and the group meetings held in the first quarter of the semester. Students with course scheduling conflicts should not sign up for this course. This course is not open for students following a study abroad semester.</p>
Special Information	<p>The maximum marking period is 10 working days from the final deadline. Marks will be registered in advance of the following academic term.</p> <p>This course is equivalent to the History Scriptie. It is mandatory and awards 6 ECTS upon completion.</p> <p>This course has limited enrolment, and is open to students who submit a tentative thematic research proposal with clear theoretical scope.</p> <p>This course requires attendance to lectures, group meetings and consultations. Thus, students with schedule conflicts or study abroad plans are not eligible for this course.</p>
Period of Education	<p>Full semesters (Q1-2 & Q3-4)</p>
Minimum aantal deelnemers	30
Maximum aantal deelnemers	75

Year
Organization
Education

2018/2019
Architecture
Master Architecture, Urbanism & Building Sciences

21 ECTS Electives

Introduction 1

The Master 2 program of Architecture consists of a total of 30 credits, of which 21 credits compulsory and 9 credits free elective.

Compulsory (total of 21 credits):

- History Thesis (AR2A010) or the Theory Thesis (AR2DSD820) of 6 credits
- The Delft Lectures on Architectural Sustainability of 3 credits
- An approved Master 2 Architecture design project (12 credits) (see list in studyguide)

Elective (total of 9 credits):

- free electives as to be found in the studyguide

There are 3 possibilities for doing the Architecture Master 2 design project:

- 1 - the Master 2 Architecture design project can be an Architecture Master 1 design project (that you have not followed yet), that you attend as an Master 2 design project (12 credits)
- 2 - a design project (12 credits) from the 'MSc 2 design project list', either a semester project or a quarter project (quarter 2 or quarter 4)
- 3 - it is also possible to participate in an (international) program of another university. For this please contact 'International Office' and Students Affairs (O&S)

The courses in this section are agreed on by the faculty Director of Education and the Master coordinator of Architecture as Architecture design projects suitable for Master 2.

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

MSc 2 Design Projects

AR0026	MEGA	12
Responsible Instructor	Dr. M. Turrin	
Responsible Instructor	Prof.ir. R. Nijssse	
Course Coordinator	Dr. M. Turrin	
Contact Hours / Week	93 hours per quarter	
x/x/x/x		
Education Period	4	
Start Education	4	
Exam Period	none	
Course Language	English	
Expected prior knowledge	Each student is expected to have knowledge about the disciplines to perform in the course. The level of the knowledge should be at least BSc.	
Summary	<p>MEGA is a collaborative integral multi-disciplinary design of a special big and/or tall building. This could be a multifunctional skyscraper or a multifunctional building with a large span, such as a stadium, a sports facility, a museum, an airport, train station or transport hub.</p> <p>The course targets master students in Architecture, Real Estate & Housing, Building Technology and Civil Engineering; and it is open to non-TU Delft students, conforming with TU Delft regulations. It can be chosen by Building Technology students in MSc2 (choice between EXTREME AR2AE010 and MEGA AR0026).</p> <p>Students work in teams. The design team of 4 to 7 students is responsible for delivering an integrated design as a multidisciplinary team; while each student is responsible for one discipline.</p> <p>Disciplines involved are: architecture, structural design, climate design, façade design, design/construction management and computational design/BIM. Sustainability runs transversally across these disciplines.</p> <p>The design process occurs in a collaborative digital design environment, supporting the workflow across the different disciplines. The collaborative digital design requires an integrated 3D approach with BIM (Building Information Modelling), performance analysis, and file to production processes.</p> <p>The workshop is very realistic and closely matches the design process of large international projects in the competition phase; it is a very good preparation and experience builder for your future career. It is highly appreciated by future employers.</p> <p>The course is supported by external international design/engineering offices. With them, the location of the project will be chosen and the brief of the design assignment will be developed. As examples from recent years, support was given by Arup and UNStudio, by ABT and Neutelings Riedijk Architecten. Examples of past collaborations include also Municipalities and Provinces, such as the City of Rotterdam, Almere and Den Haag, and the Province of Friesland.</p>	
Course Contents	<p>Disciplines:</p> <p>The team is organized on disciplines:</p> <ul style="list-style-type: none"> -Architectural Design -Structural Design -Climate Design and building services -Façade Design -Project and construction management -Computational Design <p>The disciplines are divided amongst the team members; each member is responsible for the contribution and integration of these aspects in the collective design. Students are encouraged to match their role in the team with the specialization they follow in the Master track.</p> <p>Phases:</p> <p>The course is structured in 3 phases:</p> <ul style="list-style-type: none"> -Lectures; excursion; intensive learning -Sketch design of 2-3 options; presentation of options; choice of one option -Preliminary design of the chosen option; final presentation <p>The first phase includes lectures by professors, external experts and architectural/engineering firms. During the excursion, the project site is visited. Intensive sessions allow studying and practicing group dynamics, collaborative work, computational design.</p> <p>The second phase focuses on the design of multiple options. The daily design activities are facilitated by tutors who are expert in the disciplines. Each discipline has a weekly time for individual consults. During a presentation, one design option is chosen for further development.</p> <p>The mid-term presentation is facilitated by external experts. Feedback by them and tutors inform the design and decision-making. Following, the external experts give a (public) lecture.</p> <p>After the mid-term presentation, the design option is detailed with the team, leading to the end presentation. The end presentation is an important event with external experts assessing the designs. The design is summarised in reports about each discipline.</p> <p>Site:</p> <p>The assignment has an actual site where the building is planned. Past examples are in Amsterdam, Rotterdam, London, Brussels, Guangzhou.</p> <p>Objectives:</p> <p>Collaborative design</p> <ul style="list-style-type: none"> -Working together with different disciplines (different goals and backgrounds) -Realistic design environment <p>Sustainable design</p> <ul style="list-style-type: none"> -Definition of sustainability for project -Contribution of all disciplines to holistic sustainable design -Development of low/zero/plus energy design <p>Computational Design</p> <ul style="list-style-type: none"> -Collaborative digital workflow across disciplines / BIM 	

- Parametric design strategies/methods
- Performance analysis with simulation tools
- Feedback loops between numeric assessments and geometric modelling
- Digital interaction between design, engineering, analysis, manufacturing and construction

Architectural Design

- Interaction architecture/masterplan/environmental context
- Development of architectural design concepts
- Integration of structural, façade, climate concepts into architectural design
- Integration of sustainability and construction into architectural design
- Development of preliminary design

Structural Design

- Development of structural concepts
- Development of concept design
- Evaluation of different structural systems in relation to architectural design
- Integration with architecture, façade, climate design
- Dimensioning of structural elements
- Development of preliminary design

Climate design

- Developments of climate and building services concept
- Development of conceptual design
- Evaluation of different climate and building services systems in relation to architectural design
- Integration with architecture, structure, façade
- Dimensioning of HVAC installations
- Development of preliminary design

Façade design

- Development of façade concepts
- Developments of conceptual design
- Evaluation of different façade systems in relation to architectural and climate design
- Integration with architecture, structure, building services

Project and construction management

- Control of objectives, tasks, deliverables
- Facilitation of the group process
- Prediction of income and building costs; optimisation
- Development of site management and logistics
- Development of construction methods/planning

Study Goals

The student is able to design a coherent, significant, elaborated, correct and innovative design - on mainline and on aspects on MSC 2 level.

Specified for this course:

After successful completion of the course, the student will be able to:

- work in an interdisciplinary design process;
- understand and apply discipline-related knowledge in projects for big or tall buildings.
- develop design strategies to achieve high building performances;
- integrate numeric analysis and simulations to address design choices.

Education Method

In this course, the education methods are:

- Lectures by professors and specialists
- Collaborative working sessions with other students
- Exposure to external architectural practice and external experts
- Consults with tutors
- Making presentation and receiving/integrating feedback

Special is the involvement of external practitioners and external experts linking this course to practice.

For this course several multidisciplinary teams of students are formed, which are each responsible for one integral design. Each student has a different role in the design team and is tutored by instructors specialized in her/his discipline. When possible, students take roles according to their specialization during the Master studies.

Apart from focussing on his/her own discipline, the aim for each team-member is to achieve the best integral design paying special attention to collaborative design, sustainable design and computational design.

Feedback is received during the mid-term and final presentation from the external experts and tutors.

Literature and Study Materials

More specific literature is provided at the start of the course. The literature below provides an indication on relevant general content.

Tall Buildings

Kloft, E., Eisele, J., (Ed), (2003) High-Rise Manual, Hardcover
 Ng, E. (Ed.). (2010) Designing high-density cities for social and environmental sustainability. London, Earthscan.
 Ali MM, Moon K. (2007) Structural developments in tall buildings: currents trends and future prospects. Architectural Science Review 50(3): 205223.
 Baker WF, Korista DS, Novak LC. (2008) Engineering the worlds tallestBurj Dubai., In The CTBUH 8th World Congress Tall & Green: Typology for a Sustainable Urban Future, Dubai; 110.
 Brown, N. C., & Mueller, C. T. (2016) Design for structural and energy performance of long span buildings using geometric multi-objective optimization. Energy and Buildings, 127, 748-761. Cross,P., Vesey,D., Chan, C.M., (2007) High-Rise Buildings. In Melchers, R.E., Hough, R., (Ed), Modeling complex engineering structures, ASCE.
 Stylianios, D., Charitou, R., Hesselgren, L., (2006) Computational Methods on Tall Buildings - The Bishopsgate Tower, Communicating Space(s) In proceedings of eCAADe 2006, 778-785.
 Almusharaf, Ayman M.; Mahjoub Elnimeiri (2010) A Performance-Based Design Approach for Early Tall Building Form Development , CAAD - Cities Sustainability, Proceedings of ASCAAD 2010, 39-50.
 Kimpian, J., Mason, J., Coenders, J., Jestico, D., Watts, S., (2009) Sustainably Tall: Investment, Energy, Life Cycle., In proceedings of ACADIA 2009: reForm() - Building a Better Tomorrow, 130-143.
 The Structural Design of Tall and Special Buildings, International Journal, John Wiley & Sons, Ltd
 Moon K, (2008) Sustainable structural engineering strategies for tall buildings. In: The Structural Design of Tall and Special Buildings, Special Issue: CTBUH 2nd Annual Special Edition: Tall Sustainability 17(5): 895914.
 Taranath, BS, (2011) Structural Analysis and Design of Tall Buildings: Steel and Composite Construction. Taylor & Francis.
 Taranath, BS, (1988) Structural Analysis and Design of Tall Buildings. McGraw-Hill, New York.
 Schueller, W., (1986) High-Rise Building Structures (2nd edn.)Robert E. Krieger Publication Company, USA.

Big buildings

Barnes, M., Dickson, M., (Ed.), Widespan Roof Structures, Thomas Telford, London, 2000

Hough, R., Carfrae, T., *Lightweight Long-Span Roofs*. In Melchers, R.E., Hough, R., (Ed), *Modeling complex engineering structures*, ASCE Publications, 2007

Imbert F., KathrynStutts Frost, Al Fisher, Andrew Witt, Vincent Tourre, and Benjamin Koren, (2012), *Concurrent geometric, structural and environmental design: Louvre abu dhabi*. In *Advances in Architectural Geometry*, 7790.

Kawaguchi, M., (1991) *Design problems of long span spatial structures*. *Eng. Struct.* 13, 144163.

Majowiecki, M., (2005) *Structural architecture for large roofs: concepts and realizations*. *Bautechnik*, 82(3): 147156.

Majowiecki, M. (1990) *Observations on theoretical and experimental investigations on lightweight wide span coverings*, International Association for Wind Engineering, ANIV.

Hladik, Pavel; Clive J Lewis (2010) *Singapore National Stadium Roof*, *International Journal of Architectural Computing* 8(3): 257-278

Shepherd, P., & Hudson, R. (2007) *Parametric definition of Landowne road stadium*. in: *International association of shell and spatial structures*, Venice, Italy, 2007,CD-ROM.

Hudson, R. (2008) *Frameworks for practical parametric design in architecture*. In: Pottman, H., Hofer, M. & Kilian,A. (eds), *Advances in architectural geometry*. Vienna, Austria,17-20.

Sanchez-Alvarez J, (2005) *Materializing geometry: the free-form reticulated roof structures for the new Milan Fair*. In: *Proceedings of AEC2005 Symposium*, Rotterdam, NL.

Assessment

Presentations and Reports

Assessment is twofold:

- Group assessment for integral group design based on presentations
- Individual assessment for discipline report

The students mark is a combination of the group assessment and individual assessment.

Special Information

The maximum marking period is 15 work days.

Remarks

The course is in English - spoken and written.

Period of Education

Quarter

AR0037	Studio Making	12
Responsible Instructor	Ir. H.A. van Bennekom	
Responsible Instructor	Ir. S.T. Bakker	
Course Coordinator	Ir. H.A. van Bennekom	
Education Period	3 4	
Start Education	3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	completed MSc1	
Course Contents	<p>"Studio Making" is a design studio that offers realistic design challenges, with real external partners, embedded in a series of interesting lectures and site visits. The topics and assignments will be mainly focussed on designing new ideas (based on solid research on the local needs and context) to increase and support circular processes in which demolition waste becomes an ingredient in new concrete. By doing this, the new results will therefore probably possess exciting, unexpected, new qualities and possibilities.</p> <p>TU Delft/Complex Projects is participating in an international project team of researchers, designers and builders that are seeking new applications with re-used raw materials (demolished concrete, brick and tiles). The TU Delft/Complex Projects is especially asked to participate in this international project because of its educational, research and student design qualities. "Studio Making" will be dedicated to designing new applications with recycled concrete and other raw materials, for real projects through western Europe. The sites will be visited during the course, and our designs will be discussed and evaluated with local parties and stakeholders in order to be realized.</p> <p>The Design "Studio Making" builds on the successful approach and contents of the 3ects course 'Making', in which students explore new design possibilities through hands-on experimenting and modeling with concrete, supported by lectures, site visits and design consulting.</p>	
Course Contents Continuation	<p>About 50% of primary raw materials in the EU are used in the building sector. At the same time, this building sector is also responsible for about 35% of all wastes. Within the construction and demolition wastes, components like concrete, bricks, tiles and ceramics have very high potential to be applied as recycled aggregates and sands in new types of concrete etc. However, until now, recycled materials are mostly down-cycled to be used as filling materials in infrastructure projects. Although the recycling quota in North-West Europe is more than 70%, but less than 4% is re-used for the original purpose: concrete production. To support recycles and further development of sustainable improvements, this studio will design new applications of concrete in which recycled aggregates define new qualities and possibilities</p>	
Study Goals	<p>the student:</p> <ul style="list-style-type: none"> - Has developed further skills in architectural design satisfying both aesthetic and technical / functional requirements. - During this trajectory skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology, social and human sciences. - Additionally, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and society's needs, including environmental and waste aspects. - During Master 1, 2, 3 & 4 skills are acquired by cumulation to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing. - skills are acquired to incorporate an understanding of the design process with regard to structural design, materialisation of buildings, comfort and climate control. 	
Education Method	design, tests, presentations, site visit, visiting critics	
Assessment	design and research book	
Special Information	The maximum marking period is 10 work days.	
Elective	Yes	
Tags	Challenging Design Drawing Energy & Industry Projects Prototyping Sustainability	
Period of Education	week 3.8 kick off, week 4.1-4.11 studio	
Leerstoel	CP	
Minimum aantal deelnemers	2	
Maximum aantal deelnemers	24	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR0052	Design Studio: Architecture and Urbanism Beyond Oil	12
Responsible Instructor	Prof.dr.ing. C.M. Hein	
Course Coordinator	Ir. H.A. van Bennekom	
Contact Hours / Week x/x/x/x	0/X/0/X	
Education Period	2 4	
Start Education	2 4	
Exam Period	none	
Course Language	English	
Expected prior knowledge	completed MSc1	
Course Contents	<p>An end to our petroleum-based lifestyles and the use of renewable energies will impact our cities and buildings. The Studio Architecture and Urbanism Beyond Oil argues that we have to first understand the enormous collective presence of oil in the built environment, its impact on production processes, financial flows, and associated social and cultural patterns in our everyday environment, and the long history of oils impact on our lives. Then, we can imagine the needs and spaces of the future and transform our existing landscapes, cities and buildings. The Architecture and Urbanism Beyond Oil studio starts with an investigation of how petroleum its extraction, refining, transformation, and consumption has shaped our built environment in visible and invisible ways around the world over the last 150 years. Some students have built on their history thesis exploring oil depictions in Hollywood films or evolving mental maps of oil as a foundation or design. Others have explored the historical development of sustainable architecture through the elective "Building Green." The studio identifies global landscapes of energy and oil. It maps and translates the findings into accessible visuals, with the goal to develop an architectural, urban or landscape project that address these findings and propose new uses and solutions. The studio has included analysis of the relevance of oil for the urban and architectural form of the port and city of Rotterdam. Students have imagined possible transition trajectories, notably suggesting a recuperation of the oil-dedicated spaces from the sea-side and new connections across the river. Other students have imagined the transformation of gas stations as lifestyle hubs, roads as energy generators, or floating self-sustaining cities. Design strategies developed in the studio can be applied to cities around the globe and possible research destinations including Rotterdam, Dunkerque, Philadelphia, Houston, and Curacao.</p>	
Study Goals	<p>Architectural and urban design are anchored in larger political, economic, social and cultural contexts. Students will learn how to place their design into the global context of oil as a commodity, the generator of financial flows, and as a mindset. They will do primary research on Rotterdam as a case study. They will work in groups on a chosen location and develop a project that acknowledges the larger theoretical and methodological premises of the course and that takes into account the different disciplinary backgrounds of the participating students.</p>	
	<p>The course is open to students in architecture, urbanism, real estate, heritage, architectural history, history and media studies, etc. and mirrors in its composition the nature of design practice.</p>	
Education Method	Lectures, discussions, and studio design work.	
Assessment	Grades will be based on course participation, assignments and the final project.	
Special Information	The maximum marking period is 10 work days.	
	Open for students from all Dutch institutions. External students please check: http://tinyurl.com/qam99u4	
Period of Education	Quarter	
Minimum aantal deelnemers	4	
Maximum aantal deelnemers	24	

AR0067	Architecture & Urban Design	12
Responsible Instructor	Dr.ir. M.G.A.D. Hartevelde	
Responsible Instructor	Dr.ir. R. Cavallo	
Course Coordinator	Dr.ir. M.G.A.D. Hartevelde	
Contact Hours / Week x/x/x/x	8 hours per week	
Education Period	4	
Start Education	4	
Exam Period	none	
Course Language	English	
Expected prior knowledge	Skills are acquired to incorporate an understanding of the design (process) attained with regard to architectural/urban history, theory, art and technology as well as relevant general knowledge of human sciences. Additionally, skills are acquired to incorporate an understanding of the design (process) attained with regard to the relation between buildings, public spaces and society's needs, including environmental aspects. During the trajectory of the Master 1, 2, 3 & 4 studios, the complexity of the architectural and urban design increases leading to a level fit for architectural/urban practice.	
Course Contents	<p>Interventions in the contemporary city need constantly to be grounded on sharp design approaches in order to respond adequately to the necessities of our times.</p> <p>Nowadays we meet in public atria and do shopping in malls; we move along covered walkways and go from street to street by taking shortcuts through the buildings of a city block. All kinds of buildings hybridised and became multi-functional anchors in the city serving thousands of people daily. The railway stations of today are entangled with the urban tissue, airports have become cities, conference centres and world expos temporarily change the urban composition, and museums are also leisure centres. In the recent decades, the amount and the proportion of public space within urban buildings has steadily increased, with much of it forming part of a larger interior and exterior pedestrian network. On the other hand the amount and size of public buildings within the urban context increased too, changing the way the contemporary city is constructed. However, still rarely designers approach the city as architecture or the building as urban design.</p> <p>For these reasons there is nowadays a great need of identifying the available design tools in order to plan effective future interventions in our cities. Particularly in the case of existing urban environments, design approaches require a conscious understanding of urban design as well as an adequate knowledge of changes in building typologies.</p> <p>In this design studio, architects and urban designers work together in the examination of the urban space as architectural space and the architectural space as urban space. In this experimental design project, students and staff are interested on one hand to the urban intervention in the built environment and its effect on architecture, and at the other hand to the architectural treatment of the city and its effect on urbanism.</p>	
Study Goals	<p>The student:</p> <ul style="list-style-type: none"> - understands the interrelation of architectural and urban design, to evaluate and create proposals for strategic interventions, with regard to spatial-social patterns and the culture of the city - evaluates skills in architectural and urban design to create an elaborate design proposal in typological terms related to use, ownership and meaning - creates an elaborate design proposal on the edge/overlap of both professions, satisfying formal, technical and functional requirements, including materialisation. 	
Education Method	Interactive studio work	
Assessment	Design / Research, presented in drawing form with written commentary and a model.	
Special Information	<p>The maximum marking period is 10 work days.</p> <p>The studio work includes an excursion to the site. Please, do not hesitate to inform with the course coordinators what this year's case studies is.</p>	
Period of Education	Quarter 4	

AR0072	Solar Decathlon	12
Responsible Instructor	Prof.dr.ir. A.A.J.F. van den Dobbelssteen	
Course Coordinator	Ir. P.G. Teeuw	
Contact Hours / Week x/x/x/x	8 hours per week	
Exam Period	none	
Course Language	English	
Course Contents	<p>The Solar Decathlon is a bi-annual competition of solar homes built by universities across the world. TU Delft is also participating in this competition.</p> <p>This course is connected to active involvement of students participating in the TU Delft Solar Decathlon team. This course deals with the architectural and technical design and elaboration of the TU Delft entry to the Solar Decathlon competition.</p>	
Study Goals	<p>The student is able to design a coherent, significant, elaborated, correct and innovative design - on mainline and on aspects on MSC 2 level.</p> <p>Specified for this course; the student is able to:</p> <ul style="list-style-type: none"> - collaborate in a team with other students - work on a joint design of an energy-neutral or energy-producing house - integrate various aspects of sustainability into the design of the house - elaborate on components of the design challenge, related to architectural design, structural design and engineering, envelope design and engineering, climate design and engineering, HVAC systems, electrical systems etc. 	
Education Method	Tutorials, workshops, (mid-term) presentations, reporting, exhibiting	
Assessment	The design, report and oral presentations will be assessed by different criteria. Also the group attitude and pro-activity of the student will be reviewed.	
Period of Education	Semester	

AR0076	The New Town: Design Studio Africa	12
Responsible Instructor	M.J. Emmerik	
Responsible Instructor	Prof.dr. W.A.J. Vanstiphout	
Course Coordinator	M.J. Emmerik	
Instructor	Prof.dr. W.A.J. Vanstiphout	
Instructor	M.J. Emmerik	
Education Period	4	
Start Education	4	
Exam Period	none	
Course Language	English	
Summary	<p>This Research and Design studio is focused on one of the fastest urbanizing regions in the world: the African west coast between Cote d'Ivoire and Nigeria where more than a dozen agglomerations with millions of inhabitants are stretched over an area of approximately 500 miles. This creates an urban area with a potential coherence and accumulative value comparable to regions such as the East Coast of the United States or the Pearl River Delta in China.</p> <p>The African 500 mile city however, in contrast to its American and Chinese stretches across five countries, with different political systems, economies working at different speeds and complex relationships with each other. On an urban level, they are connected by a dynamic of urbanization due to immigration and economic growth which brings huge pressures on the livability and ecological sustainability of the area. Conversely, the urbanization process itself is hugely pressurized by the effects of climate change, making linear city between Accra and Lagos one of the areas most at risk both from the rising of the sea level, and the swelling of rivers such as the Volta and the Niger.</p> <p>But there is more holding this region together. This part of West Africa has a very old, precolonial, precolonial history of urban civilization and states, with great examples in the Dahomey and Benin kingdoms. This shared history was however hacked into pieces during colonial times, that also brought with them a series of trading posts later developing into the metropolises of today. There is, in other words a large historical heritage to be found on the ground as a cultural backbone to the 500 Mile City.</p> <p>In this research and design studio students develop Urban and Architectural design projects based on extensive fieldwork in West Africa, exploring this area through the perspective of modern new town planning and try to conceptualize and explain these conurbation as part of the present global urbanization. How can we understand these large urban areas as a physical manifestation of its various backgrounds? How can we use the design models used by architects and urban planners for new town planning in the past to deal with this rapid urban growth? What are the contemporary planning issues of the new cities of the 21st century? Can the developed and developing nations learn from each other in the planning and development of new towns? And what effects does this have on the daily lives and the economies of the regions involved?</p> <p>This course, in combination with The New Town: Lecture series (AR0023) is open for students from the master tracks in Architecture (MSc2) and Urbanism (Q4 elective). It is organized by the chair of Design as Politics in collaboration with the International New Towns Institute.</p>	
Course Contents	<p>In this research and design studio you will develop Urban and Architectural design projects based on extensive fieldwork in West Africa. We will concentrate on a massive transnational conurbation that is forming between Abidjan (Ivory Coast) and Lagos (Nigeria). We will explore this area through the perspective of modern new town planning and try to conceptualize and explain these conurbation as part of the present global urbanization.</p> <p>The aim of the studio is to understand the development of this unplanned megacity, its effects on the daily life and local economies, and to explore the role that design and new town planning might play on many different scales in this urban situation where there is no strong role for a central state.</p>	
Study Goals	<p>After successful completion of this course you are able to:</p> <ul style="list-style-type: none"> Analyze the physical manifestation of rapidly urbanizing areas in relation to the social-economic and political context in which they emerge and to transform your findings into a design brief. Develop strategic architectural or urban interventions that guide or facilitate rapid urban growth. Reflect on western planning principles and their application to the African context and visa versa. 	
Education Method	Design tutoring / Studio sessions / Presentations / Field research	
Course Relations	One meeting each week, consisting of design tutoring and collective pin-up sessions combined with extensive field research.	
Course Relations	This studio is complemented by a theoretical introduction to New Town planning (AR0033). Enrollment to this lecture series is compulsory for students participating in this studio.	
Assessment	Assessment takes place based on a design project, your attendance and participation during the field research and a final presentation. More information will follow at the beginning of the course.	
Remarks	This studio is organized by the chair of Design as Politics in collaboration with the International New Town Institute, and a number of international global parties such as the Dutch ministry for foreign affairs, UN Habitat and local universities and development agencies. For more information see: www.designaspolitics.nl and www.newtowninstitute.org	
Remarks	Participating students are required to cover additional traveling expenses for a field trip to Africa (around 1300,- for travel and accommodation.)	
Period of Education	This course starts in the second semester (spring 2018)	

AR0077	The Why Factory MSc2 Design Studio	12
Responsible Instructor	Prof.ir. W.G.M. Maas	
Course Coordinator	J. Arpa Fernandez	
Responsible for assignments	S. Gargaretas	
Contact Hours / Week x/x/x/x	0/0/0/X	
Education Period	4	
Start Education	4	
Exam Period	none	
Course Language	English	
Course Contents	<p>This course is a MSc2 studio, and is organized as a think tank. Studios at The Why Factory are content-driven design and research studios with a practical and theoretical scope. MSc2 studios are research labs and platforms that aim to analyse, theorize and construct future cities. They conduct a variety of investigations within the given world, and produce future scenarios beyond it: from universal to specific and global to local.</p> <p>MSc2 studios start with a specific brief and a statement on the future of urban life. Based on the brief, future scenarios will be developed leading to visionary, city-related designs.</p> <p>Students develop their specific approach to the brief and define the necessary scientific research. Calculations, simulations or modelling to support the studio work are elaborated in a parallel seminar: the MSc2 Future Models I seminar.</p> <p>The results of the research lead to a design project with consequent logic, convincing argumentation and illustrative and fantastic visuals.</p>	
Study Goals	<p>Upon completion of the Master 1, 2, 3 & 4 studio trajectory, the student:</p> <ul style="list-style-type: none"> - Has developed the necessary skills in architectural design that satisfy programmatic, aesthetic and technical requirements. During the Masters trajectory, the complexity of the architectural design increases, leading to the level required for professional practice. - During this period, skills are acquired to increasingly incorporate an understanding of design processes, architectural history and theory, art, technology and human sciences. - Additionally, skills are acquired to incorporate into design an understanding of the relation between territory, buildings, spaces and societies needs, including environmental aspects. - During Master 1, 2, 3 & 4, skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing. - Together with the building technology training, during Master 1, 2, 3 & 4 skills are acquired to incorporate an understanding of the design process with regard to structural design, materialisation of buildings, comfort and climate control. 	
Education Method	<p>Atelier: 150 hours Self study: 270 hours</p>	
Assessment	Presentation	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Quarter	
Maximum aantal deelnemers	30	

AR0086	Infrastructure and Environment Design	12
Responsible Instructor	Dr. F.L. Hooimeijer	
Responsible Instructor	Dr.ir. T. Kuzniecowa Bacchin	
Course Coordinator	Dr. F.L. Hooimeijer	
Instructor	Dr.ir. T. Kuzniecowa Bacchin	
Instructor	Dr. F.L. Hooimeijer	
Contact Hours / Week x/x/x/x	0/0/0/X	
Education Period	4	
Start Education	4	
Exam Period	none	
Course Language	English	
Course Contents	<p>With urgent urban challenges such as climate adaptation, energy transition, and continued urbanisation, the urgency of integrating planning and design with urban engineering increases. The implementation of new technological interventions and the utilisation of the natural system is hampered by the lack of an integrated approach incorporating urban planning and design decisions. Meanwhile, urban and economic growth increasingly competes for infrastructure and environment, affecting the success or failure of the daily operating systems of cities and thereby urban competitiveness. The challenge is to fundamentally re-think the urban landscape in light of new technologies. The question is how to renew existing cities by integrating the parameters of the natural system, as well as technological innovations directly into urban development opportunities arising from spatial planning and design.</p> <p>In order to stimulate and design the synergy between design and engineering this course offers the possibility for architects, urban designers and landscape architects to get well acquainted with the concepts and language of civil engineers on the subject of infrastructure and environment; at the same time the civil engineers will get acquainted with the world and language of designers.</p> <p>In order to create an emerging path where synergy between the disciplines makes sure that technology becomes embedded in the design process, this course offers possibilities for both urban designers and civil engineers to get well acquainted with each others discipline. This is achieved by collaborating with the course Technology and Practice Water Management in Urban Areas at (CT5510) that elaborates on the technology of building site preparation and will show the collaborative worlds of soil and water.</p>	
Study Goals	<p>The goal of this course is that students will be able to:</p> <p>Formulate their design perspective that is based in a conceptual or theoretical framework.</p> <p>Identify and discuss the synergy between natural conditions and technological potential and possibilities in urban environments.</p> <p>Analyse and design infrastructures on a regional scale and on the scale of the section.</p> <p>Identify and discuss the tension between public and private development in infrastructures and environments.</p> <p>Apply methods concerning the appraisal of sustainable urban environments and infrastructure.</p> <p>Demonstrate in a design the connection between the natural system and technical possibilities in urban environments.</p> <p>Be able to translate analyses into design and the design into a formal plan.</p> <p>Perform inter-disciplinary working.</p>	
Education Method	<p>Readings in the field of knowledge brokerage, technical entrepreneurs, landscape ecology, sustainability and urban theory for a better understanding and theoretical framing of the individual project.</p> <p>Exercises in building a theoretical or conceptual framework and translating analyses into design.</p> <p>Interdisciplinary learning by taking class with civil engineers and policy students in which understanding can be created for each others knowledge and skills, where fences between the knowledge fields can be broken down, where contacts can be made for later in professional careers. The Urban Water Management course starts in Q3 with 8 lectures of which the compulsory ones are indicated in the schedule, the others can be viewed on colleggerama. In Q 4 there is an assignment, excursion and workshop with the urban water management students.</p> <p>Workshops with professionals and with students of technical background to understand differences in language and concepts and learn to apply the technical information to the spatial context.</p> <p>Individual or group project as elaboration of the workshops.</p> <p>Project in practice: research assignment with a partner in practice to answer to the goals of this course. It needs to be with a company or institute, municipal department with a technical focus. With them you need to arrange that you work on a certain research or design project that can be done in 10 weeks, minus the time you need for the other activities in this course and your other electives. You can also take the summer months to extend the internship. The result is a report where, taking in consideration the learning goals for this course, a reflection is done on the project and/or way of working.</p>	
Literature and Study Materials	Literature list is given with the course outline. It covers theory on sustainability, knowledge brokerage, eco system services, urban ecology, infrastructure and urban design.	
Assessment	<p>The course results in an individual project or a project in practice. The content of individual project is:</p> <ol style="list-style-type: none"> 1) Use of theory to frame your research and design perspective. 2) Research and analyses of technical data/infrastructure of your site resulting in an environmental and infrastructure potential map. 3) Research and analyses of the surface of your site, resulting in a surface potential map. 4) Synthesis between 2 and 3 and together with 1 resulting in a (spatial) concept. 5) Concept translated in a performance based urban design that will be translated into a formal plan. 	
Remarks	<p>This course is combined with:</p> <p>Technology and practice Water management in urban areas CT5510 4ects</p> <p>Summary: master course on design and planning of the urban water management system. Water fluxes and relevant processes in water and soil. Storm water, surface water and groundwater drainage design (quantity and quality) in interrelation with subsidence and based on functional demands and standards. Storm water infiltration and building site preparation. Water wise spatial planning and urbanism. Water management policy development.</p> <p>Responsible Professor: Nick van der Giesen Course Coordinator: Frans van der Ven</p> <p>This course includes the course AR0093 Infrastructure and Environment Method Module. It is not possible to take both this course and AR0093.</p>	
Period of Education	Quarter	

AR0094	Bucky Lab A	12
Responsible Instructor	Dr.ing. M. Bilow	
Course Coordinator	Dr.ing. M. Bilow	
Education Period	3 4	
Start Education	3	
Exam Period	none	
Course Language	English	
Course Contents	<p>The focus of the semester is an innovative building construction or facade design for an architectural related building, this may be a part of a building, a pavillion or a facade. The task is a building component in which all the important technical and architectural aspects of a building are integrated in. The first three weeks students individually research and analyse the assignment in order to come up with an innovative concept. The remaining weeks of the semester are dedicated to a design by research process in which all the main aspects of the design, from applied mechanics, material propertie to production techniques are researched ending in an integrated final design. Computer modeling, virtual and full scale material prototyping are part of the process.</p> <p>This course is a shorter version of the already known bucky lab, so expect the same fun but in a smaller package ! We try to focus more on the construction and will reduce the building physics and structural engineering part.</p>	
Study Goals	<p>The student is able to design a coherent, significant, elaborated, correct and innovative design - on mainline and on aspects on MSC 2 level.</p> <p>Specified for this course: the student</p> <ul style="list-style-type: none"> - has an understanding of the relation between design, society, realisation, materialisation and functioning. - is able to design and evaluate building components based on their function and performance. 	
Education Method	Design consultation and computer modeling. Design by prototyping	
Assessment	Individual report of innovative concept and reports in team of two students of design by research process from concept to final design, main focus the level of integration of all the researched aspects.	
Special Information	The maximum marking period is 10 work days.	
Period of Education	summer semester starting in week 6	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR0096	EXTREME technology	12
Responsible Instructor	Prof.dr.ing. U. Knaack	
Course Coordinator	Ir. R. Schroën	
Contact Hours / Week	12 hours per week x/x/x/x	
Education Period	4	
Start Education	4	
Exam Period	none	
Course Language	English	
Course Contents	<p>The project is about building in a extreme situation, in respect to climate, location and function. Essence is the interaction between the extreme circumstances, the technical solutions, and the architecture. Extreme circumstances do request technical solutions which will be the starting point for the design development. The designer has to direct the 'engineer questions and answers', towards the articulation of the form which is based on integration of aesthetic and technology.</p> <p>"Die Architectur des 21 Jahrhunderts hat ihre Unschuld verloren, Gebaude müssen etwas leisten" Stefan Behnisch.</p> <p>In the end the student is able to understand technical solutions, to reflect on them, to applicate them and to transform them. And the student is able to design a coherent design result.</p>	
Study Goals	<p>The student is able to design a coherent, significant, elaborated, correct and innovative design - on mainline and on aspects on MSC 2 level.</p> <p>Specified for this course:</p> <p>In the end the student is able to design a healthy coherent building in extreme conditions with a focus on technical solutions: the student is able to apply, reflect and transform principles concerning climate, construction and structure.</p>	
Education Method	Design project	
Assessment	The design result including the aspects structure, climate and envelope.	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR0098	Sustainability project design and elaboration	12
Responsible Instructor	Prof.ir. M.F. Asselbergs	
Responsible Instructor	Prof.dr.ir. A.A.J.F. van den Dobbelsteen	
Course Coordinator	Ir. P.G. Teeuw	
Course Language	English	
Course Contents	This course is connected to active involvement of students participating in design teams related to practice. This course deals with the architectural and technical design and elaboration.	
Study Goals	The student is able to - collaborate in a team with other students - work on a joint design of a specific (building) design project - integrate various aspects of sustainability into the design of the project - elaborate on components of the design challenge, related to architectural design, structural design en engineering, envelope design and engineering, climate design and engineering, etc.	
Education Method	Tutorials, workshops, (mid-term) presentations, reporting, exhibiting (if applicable)	
Assessment	Portfolio of the design, report and oral presentations will be assessed by different criteria. Also the group attitude and pro-activity of the student will be reviewed. All depending on the specific project .	
Period of Education	Varies.	

AR0149	ON SITE, Landscape architectonic explorations	15
Responsible Instructor	Dr.ir. I. Bobbink	
Course Coordinator	Dr.ir. I. Bobbink	
Education Period	4	
Start Education	4	
Exam Period	none	
Course Language	English	
Required for	students need to be master students	
Expected prior knowledge	design skills	
Summary	Please check the presentations on the Q4-free choice projects for more specific information about the site and the exact theme - this differs every year. In the course, we will study on how to define identity and how to transform ordinary spaces into specific places. We will experiment with different methods and tools. Depending on the theme we might operate as one group.	
Course Contents	In this course, you will learn how to analyse, interpret the spatial identity of a site and translate it into a landscape architectonic design. The scale of the assignment can differ from a garden to an (urban)landscape. Landscapes and cities with a strong identity are highly valued by people. Identity, heritage, continuity and transformation are important notions of todays design practise. In the course, we will study on how to define identity and how to transform ordinary spaces into specific places. Through fieldwork, the site will be studied across experimental analysis methods and techniques, also borrowed from other disciplines, like social sciences and art. The experimental analysis deals with questions related to a site exploration and notation and how to construct a design concept. It depicts the subjective, dynamic and intangible characteristics of the place such as: processes, cultural activities, memories, stories, experiences, rituals by for examples sensorial perception, tracing narratives, investigating historic sources, mapping spaces in various ways and working with experimental photography, etc. As a frame, the course offers an interdisciplinary debate on the theory of place making which feeds the design experiment. These design experiments can become models, films or real constructions in the public realm. The course will involve third parties, for example ongoing research in the section of landscape architecture, assignment from practise or can be part of an event like the Oerol festival on Terschelling etc.	
Study Goals	- to acquire knowledge of the physical form of a specific landscape; - to acquire and use theoretical knowledge on place making; - to study, visualise and edit the topography and spatial identity of a landscape (experimental analyses); - to build a relationship among landscape architecture and other fields of science like geology, archaeology, ecology, history, anthropology, and other creative disciplines like art, architecture and urbanism; - to design a landscape architectonic space.	
Education Method	studio work (experimenting) interactieve lectures workshops fieldwork	
Assessment	oral presentation with the help of: drawings models films or real constructions in the public realm	
Period of Education	Quarter 4	
Minimum aantal deelnemers	15	
Maximum aantal deelnemers	15	

AR0225	MSc2 Studio: Urban (Re)Development Game	12
Responsible Instructor	Y. Chen	
Course Coordinator	Y. Chen	
Instructor	Prof.dr. E.M. van Bueren	
Instructor	Dr.mr. F.A.M. Hobma	
Instructor	Mr.dr. P. Jong	
Instructor	Dr. C. Maat	
Instructor	Dr.ir. M. Spaans	
Instructor	Dr.ir. P.L.M. Stouten	
Instructor	Ir. H.W. de Wolff	
Instructor	Dr.ir. R. Binnekamp	
Instructor	Dr.ir. S. Zijlstra	
Instructor	Dr.ir. L. Volker	
Instructor	Dr.ir. R.S. van der Kuij	
Instructor	Dr.ir. T.A. Daamen	
Instructor	Dr.ir. E.W.T.M. Heurkens	
Instructor	Prof.dr. P.J. Boelhouwer	
Instructor	Drs. P.W. Koppels	
Instructor	Dr.ing. G.A. van Bortel	
Instructor	Y. Chen	
Instructor	Dr.ir. E.H. Stolk	
Instructor	Dr. W.J. Verheul	
Instructor	Ir. L.G.C. Heijnders	
Instructor	Dr. I. Nase	
Contact Hours / Week	0/0/0/X	
x/x/x/x		
Education Period	4	
Start Education	4	
Exam Period	4	
Course Language	English	
Expected prior knowledge	Semester 1 of Master course from Faculty of Architecture and the Built Environment	
Summary	The course is meant for master students from the department of Architecture and Urbanism who have not followed any economic course. During this unit course the theory and the practice of managing urban (re)development processes is explored through lectures, role-playing simulation in urban (re)development project at area scale, as well as at the portfolio and object scale. A third component is finance.	
Course Contents	The unit of course aims to train students to grasp an integral approach when managing urban (re)development both at the urban area scale and at the portfolio and object scale. Through a role-playing simulation project, students will be given design assignments that drive them to (re)develop a complex urban location with both residential and non-residential elements.	
Study Goals	<p>The assignment aims at drawing up a development plan for the location. The students, through this exercise, will play the roles of local authorities and private actors as well as third parties of the area and negotiate in their respect roles to reach an optimal solution. Students will conduct feasibility analysis of a particular real estate objective at the portfolio and object scale.</p> <p>This unit will equip students with sufficient skills to deal with the assignment in the simulation with a series of lectures and sessions of fieldwork, role assistance and group supervision. Students will learn about the context, goal, actors and means of realisation related to each phase of the urban area development cycle. In this process, students have to consider how to make a balance between market demand, spatial quality requirement with available means.</p>	
Education Method	<p>The unit aims to enable students to:</p> <ul style="list-style-type: none"> - understand the changing context of global and local environment and economic, social and cultural elements which contribute to various urban problems - understand the context, content, players and means of implementation during the cyclic phases of urban area development; identify positions, objectives and means as well as strategies of involved parties in different phases - analyze the social-economical and urban context as well as the status and function the area can possibly achieve in the future - set up functional programs for the area in question; identify spatial possibilities and, the feasibility and financial consequences of investments; develop institutional and financial plans for different phases in order to manage and oversee the development design and implementation process, thereby effectively integrating the input of the various actors in the project - conduct feasibility studies of real estate portfolio strategy with involved and/or potential stakeholders and the cost-benefit analysis of a particular building block at the object level - integrate multidisciplinary knowledge through teamwork, negotiate and communicate with different parties, present project results and reflect the development process with an analytical report 	
Literature and Study Materials	<p>The program of The Urban (Re)development Game comprises three parts:</p> <ul style="list-style-type: none"> - Theory: the knowledge of the theory on managing urban development is acquired through lectures and literature study - Practicum: the practice skills are acquired through role-playing in a management game, with support from role lectures, supporting literature and consultation provided by role assistance and group supervision. Students are asked to work on a master plan of a specific location and then examine its feasibility plan of a particular role at portfolio and object level. -Real estate finance: the knowledge of finance is acquired through lectures and literature study <p>The compulsory literature for Theory is:</p> <p>Franzen, A., Hobma, F., de Jonge, H. and Wigman, G (eds) (2011) Management of Urban Development Processes: governance, design, feasibility. Amsterdam: Technpress.</p> <p>Adams, D. & S. Tiesdell (2012), Shaping Places: Urban Planning, Design and Development. London: Routledge.</p>	
Assessment	<p>Other digital compulsory and supporting literature is available from the blackboard and is updated yearly.</p> <p>The result will be determined by:</p> <ul style="list-style-type: none"> - the theory component, assessed through individual 3,5 hour exam - the practice component, assessed through the quality of design assignment, the quality of presentation performance, the quality of argument and reflection in the end report - The finance component, assessed through assignment and exam 	

Exam Hours	Theory: 3,0 hours
Special Information	The maximum marking period is 10 work days.
Period of Education	Quarter

AR0681	Heritage and Architecture Design Studio: Research and architectural design	12
Responsible Instructor	Ir. W.L.E.C. Meijers	
Responsible Instructor	Prof.ir. W. de Jonge	
Course Coordinator	Ir. W.L.E.C. Meijers	
Instructor	Ir. W.L.E.C. Meijers	
Instructor	Dr. S.A. Stroux	
Instructor	Ir. A.C. de Ridder	
Instructor	Ir. W. Willers	
Contact Hours / Week x/x/x/x	8 hours per week	
Education Period	3 4	
Start Education	3	
Exam Period	none	
Course Language	English	
Course Contents	The chair of Heritage & Design is concerned with re-designing and researching buildings of significance in cultural-historical context. In this studio the cultural, historical, societal and urban context of a built structure are analysed and interpreted in relation with architectural and technical features. Historical development, urban context, typology, materialisation, technical elaboration and related literature are the main issues in a synchronic method of analysing and re-designing. Students individually create a re-design that shows a meaningful translation of an intervention strategy into the spatial, functional, urban, material and technical design. The design choices are based in an understanding in relation to cultural value.	
Study Goals	Upon completion of the Master 2 studio the student is able to: - draw conclusions from analyses and present these in an academically substantiated and comprehensive way, - define a relevant design brief and create an architectural redesign for a building or ensemble that he/she has chosen as an etude, - apply professional knowledge and design tools related to architecture, building technology and cultural value, - focus on moral sensibility, analysis, creativity and judgement skills regarding architectural ethics - explain and reflect on meaning and design development with relevant presentational means - communicate design ideas at an advanced level through verbal presentations, visual and written media.	
Education Method	Design coaching in studio during educational weeks. The design studio features individual and group tutorials, and study specific to the design project.	
Literature and Study Materials	To be announced via the tutor and/or the coordinator and/or Brightspace.	
Assessment	Presentations will be held during the semester and a final presentation at the end of the semester. Drawings, texts, models.	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Q1 / Q2 / Q3 / Q4: semester weeks 1.6 - 2.10 / 3.6 - 4.11	
Leerstoel	Heritage & Architecture	
Maximum aantal deelnemers	45	

AR0896	Van Gezel tot Meester		21
Responsible Instructor	Ir. E.J.G.C. van Dooren		
Responsible Instructor	L.A.M. Willekens		
Course Coordinator	Ir. E.J.G.C. van Dooren		
Contact Hours / Week x/x/x/x	160 hours per semester		
Education Period	1 2		
Start Education	1		
Exam Period	none		
Course Language	Dutch		
Course Contents	<p>Didactiek in ontwerpprojecten In een stage (Bachelor eerste jaar) leer je onder supervisie het vak van ontwerpbegeleider; de ervaring en problemen die je opdoet in de stagegroep kun je terugkoppelen in de onderwijsgroep. In enkele werkcolleges wordt onderzocht hoe studenten te begeleiden in het leren ontwerpen.</p>		
Study Goals	<p>Ontwerpvaardigheid en ontwerpproces In een aantal ontwerp oefeningen wordt het ontwerpproces expliciet onderzocht. Door het ontwerpproces enkele keren te doorlopen en specifiek te bestuderen wordt inzicht verkregen in meer algemene principes tijdens het ontwerpen en de eigen, individuele inbreng; ook valkuilen kunnen zo aan het licht komen. Zoals een topsporter op onderdelen en het geheel traint om tot meesterschap te komen, zo kan een ontwerper ook zijn eigen ontwerpproces trainen. Door het kanaliseren van gewoontes en het bewust worden van essentiële ontwerpmomenten kom je tot meesterschap in het ontwerpproces.</p>		
Study Goals	<p>De student is in staat een coherent, betekenisvol, uitgewerkt, juist en innovatief ontwerp te maken en onderzoek te doen - op hoofdlijn en in details - op Msc 2 niveau.</p>		
Study Goals	<p>Specifiek voor deze cursus: de student 1. heeft inzicht in het (eigen) ontwerpproces en in het (ontwerp)docentschap 2. is in staat korte ontwerp opdrachten te doen en heeft de basisvaardigheden als (assistent) ontwerp docent 3. is in staat een kort onderzoek te doen naar het (eigen) ontwerpproces en de aspecten van het ontwerpdocentschap</p>		
Education Method	<p>- stage als assistent-begeleider in een eerstejaars ontwerpproject - ontwerponderwijs op atelier (meerdere ontwerp opgaves) - enkele werkcolleges</p>		
Education Method	<p>Kennis en toepassing zijn tijdens het leren met elkaar geïntegreerd. De cursus is opgebouwd uit een groot praktijk gedeelte (ontwerpen / begeleiden) met op een aantal momenten compacte input van kennis en theorie.</p>		
Education Method	<p>Het ontwerp onderwijs vindt in principe plaats op dinsdag en vrijdag middagen, en een aantal werkcolleges op woensdagmiddag - wijzigingen in verband met de stage voorbehouden De stage vindt plaats in het tweede kwartaal.</p>		
Assessment	<p>Didactiek stageverslag waarin opgenomen een observatie en een reflectie (9 studiepunten). Ontwerpresultaten en reflectie op ontwerpproces (12 studiepunten).</p>		
Special Information	The maximum marking period is 10 work days.		
Period of Education	Semester		
Maximum aantal deelnemers	hangt af van beschikbare stageplaatsen		

AR2AD010	MSc2 Dwelling design studio 'Global Housing'	12
Responsible Instructor	Ir. H.A.F. Mooij	
Course Coordinator	P.S. van der Putt	
Instructor	Prof.ir. D.E. van Gameren	
Education Period	3	
	4	
Start Education	3	
Exam Period	none	
Course Language	English	
Course Contents	The MSc 2 AR2AD010 Global Housing Studio focuses on the worldwide issue of affordable mass housing schemes. The assignment involves designing a housing project, with the aim of providing solutions that cater for the creation of socially and ecologically sustainable urban environments as an alternative to current practices of large-scale developments, public and private, based on models. Participating in the studio requires a site visit to Ahmedabad, India of approximately two weeks.	
Study Goals	Learning Goals MSc 1/2 GLOBAL HOUSING	
	After completion of this course the students is able to:	
	1. Recognise and explain morphological and typological qualities of urban housing neighbourhoods .	
	2. Formulate a design strategy for affordable housing in relation to densities, multiple user groups, access & circulation, privacy & community and patterns of daily life.	
	3. Design and develop an urban plan for affordable housing on a proposed site.	
	4. Design and develop an urban housing neighbourhood accomodating the various relations of the design strategy.	
	5. Design and develop different dwelling types in relation to specified needs and usability.	
	6. Identify and explain the qualities of the proposed design in relation to project references and experience.	
	7. Identify appropriate building techniques and construction systems to be employed as part and parcel of the design proposal.	
	8. Produce meaningful visual and physical outputs to communicate the project to an audience of experts.	
Education Method	Tutoring of the design progress in the design studio. Workshop week	
Assessment	Examination takes place in the form of a mid-term and final oral presentation of design and analysis in drawings and images, followed by an oral examination in questions and answers.	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Education starts in week 3.6 and ends in week 4.11	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR2AI010	Interiors Buildings Cities MSc2 Design Project	12
Responsible Instructor	Prof. D.J. Rosbottom	
Course Coordinator	Ir. S. Pietsch	
Instructor	Ir. M.E. Stuhlmacher	
Instructor	Ir. L.M.M. de Wit	
Instructor	M. Pimlott	
Instructor	D.H.G. Somers	
Instructor	Ir. S. Pietsch	
Instructor	Ir. J.S. Zeinstra	
Instructor	Ir. drs. E.P.N. Schreurs	
Instructor	S.S. Mandias	
Instructor	Prof. D.J. Rosbottom	
Contact Hours / Week	4 hours per week	
x/x/x/x		
Education Period	1	
Start Education	2	
Exam Period	3	
Course Language	English	
Summary	<p>The Chair of Interiors Buildings Cities is concerned with making buildings, in places, for people. It conceives of the city, at each scale, as a work of architecture and, hence, the responsibility of the architect. This developing discussion of the chair is contextualised through an annual theme.</p> <p>The MSc2 course, Thinking through Making, encompasses design research investigations into thinking about, making and representing architecture, up to and including 1:1 scale.</p>	
Course Contents	<p>The MSc2 programme is a platform for special research and design projects proposed by members and associates of the Chair of Interiors Buildings Cities. At the heart of each of these projects, renewed every semester, is a research question or opportunity that yields possibilities for responses through design, and realised in tangible artefacts or models.</p>	
Study Goals	<p>Upon completion of the Master 1, 2, 3 & 4 studio trajectory the student:</p> <ul style="list-style-type: none"> - Has developed the skills in architectural design satisfying both aesthetic and technical / functional requirements. During the trajectory the complexity of the architectural design increases leading to a level fit for architectural practice and a training period for professional accreditation as architect. - During this trajectory skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology and human sciences. - Additionally, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and society's needs, including environmental aspects. - During Master 1, 2, 3 & 4 process skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing. - Together with the training with regard to aspects of building technology, during the Master 1, 2, 3 & 4 process skills are acquired to incorporate an understanding of the design process with regard to structural design, materialization of buildings and interiors, comfort and climate design. <p>A specific description of the aims of the studios will be published in the Studio Manual, to be distributed at the beginning of the course.</p>	
Education Method	<p>The design studio features individual and group tutorials, and study specific to the design project as well as several dedicated thematic exercises, internal lectures and seminars that pertain to and inform the subject.</p>	
Literature and Study Materials	<p>to be announced upon beginning of the course</p>	
Assessment	<p>Assessment will focus on the research work undertaken by the individual student within the set theme; the specific research questions raised within; the specific design study that responds to those questions; the representation of that study in a physical artefact made by the student.</p> <p>Products: models up to 1:1 scale; drawings / texts if applicable</p> <p>The project will be assessed on:</p> <ul style="list-style-type: none"> - the position that is formulated with regard to the brief and its context; the contribution to a collective discourse. - the appropriateness of the intervention with respect to the assignment; the feasibility and translatableability of the idea into a physical manifestation. - aesthetic and technical / functional qualities; the elaboration throughout the respective scales - the quality of the presentation, the products and the argument. - the consistency and coherence and development of the students work during his / her process 	
Special Information	<p>The maximum marking period is 10 work days.</p>	
Period of Education	<p>The project starts in week 6 of the first quarter and extends towards the end of the semester. An introduction meeting will take place at the beginning of the semester.</p>	
Leerstoel	<p>Interiors Buildings Cities</p>	
Course evaluation	<p>For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/</p>	

AR2AP012	MSc2 Public Building Design Studio	12
Responsible Instructor	Dr.ir. M.G.H. Schoonderbeek	
Responsible Instructor	Dr.ir. S. Komossa	
Course Coordinator	S. Milani	
Course Coordinator	Ir. A.M.F. van Dam	
Instructor	Ir. F. Geerts	
Instructor	Dr.ir. S. Komossa	
Instructor	Ir. M.J. de Haas	
Instructor	Ir. A.M.F. van Dam	
Instructor	Dr.ir. M.G.H. Schoonderbeek	
Instructor	S. Lee	
Instructor	O.R.G. Rommens	
Instructor	A.S. Alkan	
Instructor	N.E.A.I. Deboutte	
Instructor	N. Marzot	
Instructor	S. Milani	
Contact Hours / Week	8 hours per week	
x/x/x/x		
Education Period	3	
Start Education	4	
Exam Period	3	
Exam Period	none	
Course Language	English	
Course Contents	<p>A-PB's MSc. 2 studio focuses on the conditions under which architecture operates through the limits of global urbanization and emerging contexts, as well as interdisciplinary processes that blur disciplinary bounds. These conditions allow for elaboration on formal expressions of the architects position in regard to both the disciplinary context and the breach of the disciplinary boundaries themselves.</p> <p>Architecture distinguishes itself from mere building: it aspires to accomplish above and beyond meeting necessities and to provide something out of ordinary. We can surmise that architecture stipulates "exceptions" that set itself apart from everyday built environment. Therefore, architecture deals with specificity rather than generality.</p> <p>A-PB's MSc. 2 design studio aims to initiate various design agendas from the specificities and/or exceptionalities of a particular material culture of a place arriving at a fully elaborated architectural design. The studios hinge around the specificities through which the students are confronted with singular aspects of different situations. By elaborating on the core issues and eventually defining their own design positions, students are expected to implement their research into design practice within the collective framework.</p> <p>The sites and urban conditions that vary each year provide testing ground for diverse scales of inquiry, intervention, analysis and cultural perspective. Architectural means, instruments and techniques provide operative interface but also focus on a set of precisely delineated a priori as compositional constraints. Hence design research is exercised by and within the instruments, techniques and languages of architectural design.</p> <p>The cities of the design groups will be announced shortly before the enrollment period starts. Each enrolled student will have an opportunity to choose the group of his/her preference.</p> <p>Each city-group requires an excursion abroad. The excursion may cost around 400 or more per person for transport, lodging and other expenses depending on the location.</p>	
Study Goals	<p>Learn to design an architectural object that meets aesthetic as well as technical and functional requirements.</p> <p>Understand the relationship between architectural work and its context, as well as the ways to relate architectural experimentation to culturally conducive urban environment.</p> <p>Understand the role of architects and architecture in society.</p> <p>Develop the ability to clarify a design project to others by means of images, spoken and written words.</p>	
Education Method	<p>Studio: 112 hours Lectures: 8 hours Independent study: 216 hours</p>	
Assessment	<p>Studio attendance & participation</p> <p>Excursion participation</p> <p>Mid-term (week 4.2) and final (week 4.10) reviews</p> <p>(Specific weeks & dates of the presentation may be subject to change according to the official academic calendar of the university.)</p>	
Special Information	<p>The studio work may include and be supplemented by charrettes, informal/intermediate reviews, as well as by supplementary lectures and workshops.</p> <p>Shortly prior to the beginning of the semester, each student will have an opportunity to choose and sign up for one of the city-groups. The student must select and express the first, second and third preferences. When the preferences are missing, the student will be randomly assigned to a city-group.</p> <p>After the city-studio selection process, each student will also be given an opportunity to switch places 1:1, if necessary and at the discretion of the studio instructors.</p> <p>During the first half of the semester, until the midterm review, the students will work in groups.</p> <p>The maximum marking period is 10 work days.</p> <p>For more information, contact: pb-edu-bk@tudelft.nl</p>	

Period of Education	Semester
----------------------------	----------

AR2AT020	Agential Materialism Architecture Theory Design Studio	12
Responsible Instructor	Dr.ir. H. Sohn	
Course Coordinator	Dr.ir. H. Sohn	
Instructor	Dr.ir. A. Radman	
Instructor	Dr.ir. H. Sohn	
Instructor	Dr.ir. S. Kousoulas	
Instructor	Dr. A. Altes Arlandis	
Contact Hours / Week x/x/x/x	8 hours per week	
Education Period	4	
Start Education	4	
Exam Period	none	
Course Language	English	
Required for	This course is an elective choice for the required MSc2 studio credits.	
Expected prior knowledge	Students with interest and motivation in theoretical and conceptual aspects of architecture design are encouraged to join this studio.	
Course Contents	<p>The Architecture Theory Studio Agential Materialism is a design studio with a strong theory component that engages architecture as a material-discursive practice, in which the conceptual and the non-conceptual (theory & design) are regarded as fully agential and relational: they happen and emerge in the same space-time-matter continuum. In our studio we will investigate conceptual terms such as matter, objects, things, bodies, as well as the notions of process, change, emergence and agency, among many others, as a means to investigate their application and potential for architecture design. Our studio explores the power of concepts as methods for practice, and experiments with the affective capacities of matter as fundamental in the genesis of form.</p> <p>The thematic and design assignments of our studio vary, but always depart from actions rather than programmatic or functional prerequisites, foregrounding the potentials of architectural, material and spatial agencies involved in the design process.</p> <p>This studio is highly experimental and hands-on in regards to the material aspects of theory as practice. It welcomes students who are inclined to explore unfamiliar (yet exciting) themes, raise interesting questions and problems, and experiment with ideas and matter to make their design practice and skills more meaningful.</p>	
Study Goals	<p>After completion of this design studio the participants will:</p> <ul style="list-style-type: none"> have a solid base of knowledge on recent literature in the humanities and the social sciences and their relation to architecture practice and theorization have acquired solid knowledge-base to discern theoretical, analytical and synthetic methodologies and their application in the design process. have developed a deeper understanding of the relationships, potentials and interactions of different agents involved in any design process. have developed experimental and innovative design skills through conceptual, abstract and theoretical thinking. have experimented with different media and tools as aids for the communication of architectural proposals and ideas. have acquired research skills, and will be able to apply these in reflections and theoretical argumentation of their design projects. will have acquired understanding of the societal, cultural, technological and ethical dimensions of a design process that includes human and non-human actors alike. 	
Education Method	<ul style="list-style-type: none"> monthly lectures and weekly theory seminars discussion on related themes weekly design studio reviews presentations (interval & final) with visiting critics 	
Course Relations	<p>This course is compatible with the Architecture Theory Thesis course (AR2AT030). We encourage students to follow both courses in the same semester.</p> <p>Students wishing to participate in both courses are advised to register in the enrolment period for the Spring semester.</p>	
Literature and Study Materials	<p>Study material, reading lists and other relevant course-related literature will be made available to the students prior to the first meeting.</p>	
Prerequisites	<p>Students wishing to participate in this course are strongly recommended to have completed the necessary credits for MSc1.</p>	
Assessment	<ul style="list-style-type: none"> methodology development architectural design proposal theoretical reflection 	
Special Information	<p>This course is highly compatible with the Architecture Theory Thesis (AR2AT030). Students wishing to follow this studio are advised to enrol in both courses. Please note that the courses have different education periods (Q1/3 & Q4 respectively)! For questions please contact our student assistants or the academic coordinator at AT-MSc-BK@tudelft.nl</p>	
Elective	Yes	
Tags	<ul style="list-style-type: none"> Abstract Adventurous Design Group work Intensive Process Research Methods 	
Period of Education	This studio is offered only in Q4 (Spring term) of each academic year.	
Leerstoel	Architecture Theory Chair	
Maximum aantal deelnemers	20 students	

AR2CP010	MSc2 Complex Projects Design and Research Studio	12
Responsible Instructor	Prof.ir. C.H.C.F. Kaan	
Course Coordinator	M. Triggianese	
Contact Hours / Week x/x/x/x	80 hours per Quarter	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	BSc and MSc 1 completed	
Course Contents	<p>AMBITION In Master 2 we focus on Cities. This research and design studio promotes broad speculation, independent thinking, collective work with the aim of positioning architecture into a broader social, cultural, political, and economic context. Through the various themes, students are exposed to the versatile layers of the city, while simultaneously expected to engage their observations with daily studio work. Understanding the hard and soft layers, that actually define the values of a contemporary city, can lead towards ambitions to follow. After forensic analysis of the layers, a new framework will be developed for the project area that will be extracted and developed in detail.</p> <p>EVALUATION Evaluations will be based on the research approach, dedication, commitment, effort and improvement of the team in the investigation of the City (and the project area). Concrete aspects for evaluation are: research work, clarity of the problem statements, originality of the final presentation. Please contact the course coordinator for the specific programme / cities of the semester.</p>	
Study Goals	<p>The student: Has developed the skills in architectural design satisfying both aesthetic and technical/functional requirements. During the trajectory the complexity of the architectural design increases leading to a level fit for architectural practice. During this trajectory, skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology and human sciences. Additionally, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and societies needs, including environmental aspects. During MSc1, 2, 3 & 4 process skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing.</p>	
Education Method	Besides studio program students are expected to fully engage with events and people which the sites have to offer. Workshops, lectures, tours and travels are included in the studio programme.	
Assessment	Midterm presentation including research, argument and concept. Final presentation with posters and research booklet. Additional visualisation tools can be used, such as video, reportage, models.	
Special Information	As part of the Complex Projects objective, the search for definition of city guides the Design and Research studio, 'IN Cities' studio in its most direct way. Please contact the studio coordinator to know this year's case studies.	
Period of Education	Semester	
Leerstoel	Complex Projects, department of Architecture	
Minimum aantal deelnemers	12	
Maximum aantal deelnemers	16	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR2FM010	The Delta Shelter	12
Responsible Instructor	P.A. Koorstra	
Course Coordinator	P.A. Koorstra	
Education Period	3 4	
Start Education	3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	BSc and Master 1	
Course Contents	<p>The assignment is to design a small project in a Delta environment; a dynamic and natural surrounding on the border of water and land.</p> <p>The infinity of the location and the constant changing conditions invite to research the meaning of boundaries and the integration of the landscape in the design. The experience of the specific and poetic qualities of this environment will be one of the explicit themes in this course; the contradiction between the human scale and the unrestricted landscape, the influence of wind and tide, the flora and fauna and the position of human within this often vulnerable ambience.</p> <p>The role, impact and contribution of architecture in such places is part of the research in this assignment. More specific the typology and manifestation of the architecture will be discussed and developed on the basis of the design proposals. The ethics and aesthetics of architecture will be discussed regarding questions as; What are the necessary conditions for architecture to give a satisfying contribution to this environment? Is it inevitable that architecture is a disturbing factor, can it only be of temporary presence, or can architecture contribute to the appreciation and preservation of these kind of environments?</p> <p>The project will be developed by using physical scale models, hand sketches and text during all the phases of the design process; the analysis, design and presentation. The aim of this method is to stimulate the creative process by using the physical model and drawing as a feedback and inspiration tool to develop the concept into a design.</p>	
Study Goals	<p>-The student will gain competence is conducting design research and research-by-design by using physical models and hand drawings as a tool throughout the design process.</p> <p>-The student will gain insight in collaborating and communicating by making active use of various scale models to present the design in all its aspects; the architectural composition, materialisation and integration of construction.</p> <p>-The student will be able to communicate his contemplations and reflect on the role and position of the architect in this assignment.</p>	
Education Method	lectures and design studio format. Weekly assistances in groups as well on individual basis.	
Assessment	<p>Assesment on the basis of process, analysis, documentation and (re)presentation of the end result. A brief reflective statement of max 450 words is part of the assesment.</p> <p>Presentation will contain a variety of physical models, drawings, photographs and text.</p> <p>The products should give a clear insight in spatial design, the construction and the relation and meaning of the design towards its environment.</p> <p>The student has achieved a sufficient result on scale 1 to 10 with 6, has the possibility to take a resit with a mark between 5 and 6 and failed with 4,9 or minor. Resit has to be completed within 2 weeks after completion the studio.</p>	
Special Information	coordinator	
Remarks	A site visits can be part of the studio	
Period of Education	Q3 & Q4, 15 weeks, starting in week 3.6	
Leerstoel	Form & Modelling Studies, Architecture	
Minimum aantal deelnemers	12	
Maximum aantal deelnemers	32	

AR2MET010	Transdisciplinary Encounters	12
Responsible Instructor	Dr.ir. P.J. Teerds	
Responsible Instructor	Dr.ir. K.M. Havik	
Course Coordinator	Dr.ir. P.J. Teerds	
Instructor	Dr.ir. P.J. Teerds	
Contact Hours / Week x/x/x/x	4 hours per week	
Education Period	4	
Start Education	4	
Exam Period	none	
Course Language	English	
Course Contents	<p>The field of architecture holds a broad set of research and design methods, but also has the capacity to productively engage with approaches and perspectives from other fields that deal with the built environment such as literature, arts, cinema, philosophy, psychology, and social sciences. In contemporary architectural practice several architects (Steven Holl, Peter Zumthor, Bernard Tschumi, Rem Koolhaas) have used these productive encounters and exchanges with other fields to reorient architectural analysis and design.</p>	
	<p>The Msc2 studio Transdisciplinary Encounters offers a site of exploration for students interested to pursue the possibilities of the encounter between the architectural practice and other disciplines. These may be artistic disciplines, providing instruments such as literary description, narrative, montage and scenario writing, or disciplines from social sciences, providing fieldwork techniques related to social spatial practices and user behaviour. The studio encourages students to develop experimental methods of analysis and design in order to obtain new design solutions.</p>	
	<p>This studio is dedicated to the exploration of a broader scope upon the built environment by using encounters and exchanges with methods from other disciplines. It focuses on the implementation of investigative and creative methods from these fields, particularly focussing on site research and how such new methods and ways of looking can be implemented within the field of architecture.</p>	
	<p>The studio exercise will depart from specific and extensive fieldwork methods, and aims to carry out a site-specific analysis with experimental techniques. Results from the site analysis will be brought to the field of architecture step by step, in order to lead to architectural or urban strategies of intervention.</p>	
Study Goals	<p>the student:</p> <ul style="list-style-type: none"> -becomes acquainted with approaches from other disciplines such as literary, artistic and cinematographic practices, or social science disciplines -learns to conduct field work on site -learns to use and develop experimental methods of analysis and design -implements investigative and creative methods from these fields to conduct site research and develop urban or architectural strategies for a given site 	
Education Method	<p>Combined seminar and studio; in-situ fieldwork. Through experimental in-situ fieldwork the studio will develop tools in order to understand and address the issue of the public realm of a specific city, area or neighbourhood. To do so, during the studio students will adopt and adapt techniques from different other scientific or artistic fields that adjust the profession of architecture, like social geography, anthropology, sociology, and philosophy or sculpture, literature, and cinema. Through these investigations, detailed quantitative and qualitative mappings can be drawn, based on statistical analyses, socio-historical research and in-depth interviews. Depending on the specific approach of the studio, these techniques can be combined with particular drawing techniques such as the section, the softmap and the collage. The site research will thus result in evocative and speculative drawings, models, texts, and films. In a concise presentation the students are requested to evoke their projects and visions on a larger urban scale, as well as to propose site-specific interventions.</p>	
Assessment	<p>For this elective course, the process and the development of appropriate tools for fieldwork and the students reflection upon these methods and the results of the fieldwork will be assessed through mid-term presentations and a final presentation. Criteria are focussing on the consistency of the project: the relation between methods, research findings and urban or architectural strategy.</p> <p>The students are expected to bring their work together in a collective book, thereby showing the broad perspective of site investigations and developed strategies. For the final presentation, representatives from the given site and disciplinary field will be invited as guest critics.</p>	
Elective	Yes	
Tags	Research Methods	
Period of Education	Quarter	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

MSc1 Design Projects

AR1AD011	Dwelling Design Studio: 'The Netherlands'	12
Responsible Instructor	Ir. P.S. van der Putt	
Course Coordinator	Ir. P.S. van der Putt	
Instructor	Ir. P.A.M. Kuitenbrouwer	
Instructor	Ir. O. Klijn	
Contact Hours / Week x/x/x/x	112 hours per semester	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Course Contents	<p>Students of the Dutch Housing Studio design a residential complex in an urban environment in the Netherlands. The design is accompanied/preceded by research into the design assignment and the specific topics of the studio.</p> <p>Each semester the design assignment may be different from the one before. Oftentimes there are two studio options (however, the chair reserves the right to cancel an option if there is a lack of interest from students).</p> <p>Though topics may vary from one semester to the next, at the core of each studio lies the design of dwellings and of the dwelling environment, complemented by research and literature study. Design work is done individually, while some of the research may be performed in teams.</p> <p>Topics of the Studio may include (but are not limited to) the inclusive city, work-live combinations, projects for specific target groups, and small scale interventions. More specific information about the design assignment of the upcoming semester can be found on the website and at the Master-information meetings that take place twice a year.</p> <p>All MSc 1 Dwelling students will take part in a site excursion as well as a workshop or master class revolving around the theme of the studio. The studio is not available for MSc 2 students. MSc 1 students are required to also enrol in Architectural Studies (AR1AD030) and Architectural Reflections (AR1AD040).</p>	
Study Goals	<p>Upon completion of the course the student is able to</p> <ul style="list-style-type: none"> design a sketch version of an urban plan for a given area in terms of massing, program and zoning. design a complex residential building with additional functions, subscribing to the functional demands of the brief and the spatial, structural, technical and aesthetic requirements of architecture. design several dwellings that suit functional demands of their respective target groups. perform research of precedent projects and to demonstrate their impact on his/her own design. develop and compare design alternatives. critically reflect on the assumptions and starting points of the brief. convey his/her design ideas by way of (oral) presentations. critically reflect on his/her own design process. 	
Education Method	Studio: 70 hours Self-study: 266 hours	
Assessment	<p>Presentations will be held throughout the semester; assessment by way of final presentations at the end of the studio. Exact requirements to be announced at the start of the studio.</p> <p>The final grade (F) for AR1AD011 will be a weighted average of the Architecture grade (A) and the Building Technology grade (BT), such that $0,8 \times A + 0,2 \times BT = F$. Both A and BT will be rounded to half or whole points. The final grade will be rounded to one decimal place.</p>	
Special Information	The maximum marking period is 10 working days.	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1AE010	EXTREME architecture	12
Responsible Instructor	Prof.dr.ing. U. Knaack	
Course Coordinator	Ir. R. Schroën	
Contact Hours / Week x/x/x/x	12 hours per week	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Course Contents	<p>The project is about building in a extreme situation, in respect to climate, location and function. Essence is the interaction between the extreme circumstances, the technical solutions, and the architecture. Extreme circumstances do request technical solutions which will be the starting point for the design development. The designer has to direct the 'engineer questions and answers', towards the articulation of the form which is based on integration of aesthetic and technology.</p>	
	<p>For this project we will be focussing on the Maldives: a group of atolls which is expected to disappear below the rising sea level. How can we use architecture and engineering to preserve this community?</p>	
	<p>"Die Architektur des 21 Jahrhunderts hat ihre Unschuld verloren, Gebaude müssen etwas leisten" Stefan Behnisch.</p>	
	<p>In the end the student is able to understand technical solutions, to reflect on them, to applicate them and to transform them. And the student is able to design a coherent design result.</p>	
Study Goals	<p>Upon completion of the MSc1, 2, 3 & 4 studio trajectory the student: Has developed the skills in architectural design satisfying both aesthetic and technical/functional requirements. During the trajectory the complexity of the architectural design increases leading to a level fit for architectural practise. During this trajectory skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology and human sciences. Additionally, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and societys needs, including environmental aspects. During MSc1, 2, 3 & 4 process skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing. Together with the training with regard to aspects of building technology, during the MSc1, 2, 3 & 4 process skills are acquired to incorporate an understanding of the design process with regard to structural design, materialisation of buildings, comfort and climate control.</p>	
	<p>In the end the student is able to design a healthy coherent building in extreme conditions with a focus on technical solutions: the student is able to apply, reflect and transform principles concerning climate, construction and structure.</p>	
Education Method	Design project	
Assessment	The design result including the aspects structure, climate and envelope.	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1AI010	Interiors Buildings Cities MSc 1 Design Project	12
Responsible Instructor	Prof. D.J. Rosbottom	
Course Coordinator	Ir. S. Pietsch	
Instructor	Ir. M.E. Stuhlmacher	
Instructor	Ir. L.M.M. de Wit	
Instructor	M. Pimlott	
Instructor	D.H.G. Somers	
Instructor	Ir. S. Pietsch	
Instructor	Ir. J.S. Zeinstra	
Instructor	Ir. drs. E.P.N. Schreurs	
Instructor	S.S. Mandias	
Instructor	Prof. D.J. Rosbottom	
Contact Hours / Week	4 hours per week	
x/x/x/x		
Education Period	1	
Start Education	2	
Exam Period	3	
Course Language	English	
Summary	<p>The Chair of Interiors Buildings Cities is concerned with making buildings, in places, for people. It conceives of the city, at each scale, as a work of architecture and, hence, the responsibility of the architect. This developing discussion of the chair is contextualised through an annual theme.</p>	
Course Contents	<p>The MSc1 course, The House in the City, considers detailed material and spatial programmes for proto-typical city buildings with the intention of nurturing architectural sensibilities in students that are attuned to context, users, relations, appearances, spaces and interiors, materiality, and construction.</p>	
Study Goals	<p>MSc 1 is structured as a series of parallel studios, run by a dynamic mix of practitioners and academics and collectively concerned with interpretations of a common theme, the House in the City. Understood ambiguously, as in the German Haus, the concerns of the course are not the representative monuments of culture, nor the private houses of individuals. Instead, projects explore those buildings that stand between, housing our collective urban life and oscillating, in our consciousness, between foreground and background. Carefully wrought, spatially rich, generous and adaptable, such buildings have the capacity to evolve over time and to engage in a territory that might encompass both extended domestic and intimate public life. As discrete elements, subservient to a larger whole, they play small but significant roles in structuring urban fabric and defining urban space, simultaneously taking pleasure in the heterogeneity of the contemporary city and bringing it into order.</p> <p>Through individual projects, each studio addresses how such city houses might be made, experienced and inhabited, in time and space and in response to the particularities of place. Through careful drawing and iterative making, their individual characters emerge in a welcoming interior, through a moment of figuration or in the refinement of a façade.</p> <p>The contents of the individual studios will be published at the beginning of the semester. Students are asked to indicate their preference for one of them. Usually the studios include a 2-3-day excursion to a location relevant to the project. The corresponding information will also be communicated at the start of the semester.</p> <p>The MSc1 Design Project (Ar1Ai010) is conceived in conjunction with the Fundamentals course (AR1Ai040). Students are required to enrol to both courses.</p>	
Education Method	<p>Upon completion of the Master 1, 2, 3 & 4 studio trajectory the student:</p> <ul style="list-style-type: none"> - Has developed the skills in architectural design satisfying both aesthetic and technical / functional requirements. During the trajectory the complexity of the architectural design increases leading to a level fit for architectural practice and a training period for professional accreditation as architect. - During this trajectory skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology and human sciences. - Additionally, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and society's needs, including environmental aspects. - During Master 1, 2, 3 & 4 process skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing. - Together with the training with regard to aspects of building technology, during the Master 1, 2, 3 & 4 process skills are acquired to incorporate an understanding of the design process with regard to structural design, materialisation of buildings and interiors, comfort and climate design. <p>A specific description of the aims of the studios will be published in the Studio Manual, to be distributed at the beginning of the course.</p>	
Literature and Study Materials	<p>The design studio features individual and group tutorials, and study specific to the design project as well as several dedicated thematic exercises, internal lectures and seminars that pertain to and inform the subject.</p> <p>A characteristic working method of the Chair is the building of physical models of varying scales in which ideas about the design project are tested and materialized.</p> <p>To be announced upon beginning of the course</p>	
Assessment	<p>The design studio concerns the development of an architectural project on all scale levels, from its urban setting to its materiality and elaboration of its details. The project will be assessed during an intermediate, pre-final and final presentation on its:</p> <ul style="list-style-type: none"> - the position that is formulated with regard to the brief and its context - the appropriateness of the intervention with respect to the assignment - aesthetic and technical / functional qualities - the elaboration throughout the respective scales - the integration of the disciplines included - the quality of the presentation, the products and the argument. - the consistency and coherence and development of the students work during his / her process <p>The products to be assessed include the design proposal represented through drawings, models and text; the project journal and</p>	

	the portfolio.
	The final grade consists of partial grade of 80% for Architecture and 20% for Building Technology. Both grades need to be sufficient for the student to pass.
Special Information	The maximum marking period is 10 work days.
Period of Education	Semester
Leerstoel	Interiors Buildings Cities
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/

AR1AR011	Heritage and Architecture Design Studio: Architectonic Design	12
Responsible Instructor	Ir. W. Willers	
Course Coordinator	Ir. W. Willers	
Instructor	Ir. A.W. Hermkens	
Instructor	Ir. W. Willers	
Contact Hours / Week x/x/x/x	8 hours per week	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Summary	The design assignment focuses on the intervention at existing buildings or ensembles to meet requirements of contemporary and future use. The design process will be guided by exploring design possibilities and architectural consequences of the design.	
Course Contents	<p>The object of this Heritage & Architecture studio is the architectural design for the re-use of a building or building-ensemble to meet requirements of contemporary and future use.</p> <p>A transformation framework will be made by the interpretation of the analysis of the urban context, the building and the program requirements. Various aspects of designing in existing built structures are investigated by studying reference projects and literature.</p> <p>By working on different scale-levels a coherent design will be made. At atelier meetings different aspects like relation existing new, urban context, functionality, spatial quality, technical aspects, material aspects will be discussed.</p> <p>Different presentations will help students to develop their presentation skills.</p> <p>The current debate of transformation and intervention with topics like authenticity, sustainability, layers of history, and so on is very present during this course on every single scale.</p>	
Study Goals	<p>Upon completion of the Master 1 design project the student is able to:</p> <ul style="list-style-type: none"> - interpret cultural values on urban, architectural and technical scale and create a transformation framework, - translate a transformation framework to a design strategy, and a design strategy to an elaborated design, - incorporate aspects in the field of architectural history and architectural theory, art, society's needs, human sciences and environmental aspects. - make a design satisfying functional, aesthetic and technical requirements, - position the project in the discourse, - explain the architectural design during a presentation by combining oral, written and graphic media (e.g., drawings, models) 	
Education Method	Design coaching, 4-8 hours counseling per studio during educational weeks, total 112 hours. Self study: total 224 hours.	
Literature and Study Materials	Will be delivered by the tutor and/or coordinator, or via Brightspace	
Assessment	Research booklet Presentation at the end of the semester	
Special Information	Presence at the first meeting is mandatory. For the assessment the presence during the course and the overall design process will be taken in consideration.	
Period of Education	Semester	
Leerstoel	Heritage & Design	
Minimum aantal deelnemers	12, minimum group 8 students	
Maximum aantal deelnemers	48	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1CP010	Complex Projects Design Studio	12
Responsible Instructor	Prof.ir. C.H.C.F. Kaan	
Course Coordinator	M. Triggianese	
Instructor	Ir. A.T. Richters	
Instructor	S. Filippas	
Contact Hours / Week x/x/x/x	80 hours per semester	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	BSc degree Architecture	
Course Contents	<p>As introduction to Complex Projects, this design studio, 'Landmark', has the ambition to make students familiar with the multiple aspects that define a building. Landmark assignment aims for developing skills in the scientific method of analysis and synthesis. Via anatomical dissection, students learn to identify soft and hard aspects of a building while placing them in the bigger frame of the total composition of the building and its context.</p> <p>The studio promotes broad speculation, independent thinking, collective work with the aim of positioning architecture into a broader social, cultural, political, and economic context. Students will perform a thorough urban research in order to understand the areas history and context, and to identify the Landmarks that could become catalyst for intervention. The research zooms in from the large scale of the city itself, to the medium scale the site, to the small scale of the building. The resulting data has to be organized into a comprehensive research book. This serves as basis for forming a narrative which is leading for the individual redesigns of the Landmark.</p> <p>The seminar AR1CP040 (Anatomy) is fully integrated with the studio. An educational trip / excursion with on-site workshops is part of the studio program. Please contact the studio coordinator to know this year's case studies.</p>	
Study Goals	<p>Upon completion of the MSc1, 2, 3 & 4 studio trajectory the student:</p> <ul style="list-style-type: none"> Has developed the skills in architectural design satisfying both aesthetic and technical/functional requirements. During the trajectory the complexity of the architectural design increases leading to a level fit for architectural practice. During this trajectory, skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology and human sciences. Additionally, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and society's needs, including environmental aspects. During MSc1, 2, 3 & 4 process skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing. Together with the training with regard to aspects of building technology, during the MSc1, 2, 3 & 4 process skills are acquired to incorporate an understanding of the design process with regard to structural design, materialization of buildings, comfort and climate control. 	
Education Method	Tutorials in studio. Research will be done in thematic groups, design is either individual or in groups of max 2 students.	
Reader	Reader (syllabus) with the studio programme, the basic literature and the weekly schedule will be provided prior to start studio	
Assessment	<p>Monthly pin ups showing research, argument and concept.</p> <p>Trial presentation two weeks prior to the final presentation. The overall work has to be finished by then. Final presentation composed of research books (with critical investigations and site-analysis) and design studio book (with design projects) and digital presentation.</p>	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Semester	
Leerstoel	Complex Projects, department of Architecture	
Minimum aantal deelnemers	16	
Maximum aantal deelnemers	32	
Course evaluation	<p>Evaluations will be based on the overall performance within the studio. The students performance will be determined by the quality of his/her work, commitment, teamwork, effort and improvement over the entire course of the semester. Concrete aspects for evaluation are; research work, argument formulation, translation argument into concept, urban plan, architectural design, presentation.</p> <p>For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/</p>	

AR1MET010	Ways of Doing	12
Responsible Instructor	Dr.ir. K.M. Havik	
Course Coordinator	Dr.ir. P.J. Teerds	
Instructor	Dr.ir. P.J. Teerds	
Instructor	Dr.ir. W.W.L.M. Wilms Floet	
Contact Hours / Week x/x/x/x	8 hours per week	
Education Period	1 2	
Start Education	1	
Exam Period	none	
Course Language	English	
Summary	<p>The studio Ways of Doing aims to develop and assess distinct methods that allow for innovative way of analysis, architectural design, and spatial intervention in challenging (post-)industrial regions in the Low Countries. Every semester a different site to work on is chosen. These (post-)industrial areas often are dominated by characteristic constructions and buildings: huge installations, factories, warehouses and offices, some still in use, others empty. Particularly in the post-industrial sites, often social questions and signs of foreclosure dominate both the political and the physical landscape. Cities make redevelopment plans, although often it is quite difficult to find the right program and approach in order to revitalise such areas as the local economy.</p> <p>The aim of education in the Methods & Analysis MSc1 studio is to merge analysis and design extensively, in order to face difficult architectural, spatial, technological, social and political questions that dominate these (post-)industrial landscapes.</p>	
Course Contents	<p>From Otto Wagner to Aldo Rossi and Robert Venturi, architects have always developed new approaches and tools to react to changing urban conditions. The studio Ways of Doing wants to position itself within this architectural tradition and asks: Which toolbox can we cultivate to confront new urban ecologies like (post-)industrial landscapes? Through particular assignments, it aims to develop and assess distinct methods that allow for innovative way of analysis, architectural design, and spatial intervention in the challenging reality of (post-)industrial landscapes in various cities in The Netherlands and Belgium. Each semester another site is chosen to be investigated. These (post-)industrial areas often are dominated by characteristic constructions and buildings: huge installations, factories, warehouses and offices, some still in use, others empty. Particularly in the post-industrial sites, often social questions and signs of foreclosure dominate both the political and the physical landscape. Cities make redevelopment plans, although often it is quite difficult to find the right program and approach in order to revitalise such areas as the local economy. Students investigate the spatial, social and political situation by studying particular themes, like the atmosphere, the infrastructure, public space, as well as by using specific methods of analysis and design, like soft-mapping and drawing sections, or developing narratives or spatial poems. Analysis, in this particular perspective, is extensively part of the design-approach that the student will develop during the studio. Part of this approach also is the choice of location, program and aim of a spatial intervention in the area of study.</p>	
Study Goals	<p>Upon completion of the Master 1, 2, 3 & 4 studio trajectory the student:</p> <ul style="list-style-type: none"> - Has developed the skills in architectural design satisfying both aesthetic and technical / functional requirements. During the trajectory the complexity of the architectural design increases leading to a level fit for architectural practise. - During this trajectory skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology and human sciences. - Additionally, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and societys needs, including environmental aspects. This includes moral decision and argumentation skills regarding architectural ethics, especially when addressing social, political, environmental and technological issues. - During Master 1, 2, 3 & 4 process skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing. - Together with the training with regard to aspects of building technology, during the Master 1, 2, 3 & 4 process skills are acquired to incorporate an understanding of the design process with regard to structural design, materialisation of buildings, comfort and climate control. 	
Education Method	<p>The msc1 studio Ways of Doing takes up the task to investigate new tools and methods to address the challenging paradox of historical presence on the one hand, and large new developments on the other. The studio does so by constantly shifting to different methods, in order to look at the site and the research question from various perspectives, which can vary from strict architectural towards technological, and from spatial to political perspectives.</p> <p>During the course, different methods will be applied: from fieldwork to investigations by means of narrative or sections; from material explorations to the development of sequences of use; by focussing on building-technological aspects or on atmospheric aspects of spaces; from focusing on basic architectural elements such as floor, wall and roof, to articulating structural aspects like repetition and hierarchy.</p> <p>Students will start to work in small groups on distinct research themes the result of these investigation is understood as the share knowledge base that is developed in the studio. Based on these insights, the students either continue to work in groups or work individually on the proposal of a spatial intervention in a location of choice.</p>	
Course Relations	<p>This design studio is accompanied by two theoretical seminars, Architectural Tools (AR1MET030) and The Roles of the Architect (AR1MET040) that respectively investigate the instruments used by architects to develop their plans and ideas, and how these affect the very outcome of the design-process, and explore the various roles architects can take within contemporary practices and society.</p>	
Assessment	<p>The course is assessed through a mid-term review and a final presentation of the project. However, as for this course the process is as important as the final design, the students need to present not only the project, but also substantial intermediate findings. The tutors will assess, during the mid-term review and the final presentation the way students understand and apply different methods offered. Particular attention will be given to the question how the student succeeds in using methods as offered in the studio, and how the student is able to formulate particular design hypothesis based on these exercises. The consistency of the project on a methodological, architectural and technical level is crucial for the final assessment. For the mid-term review as well as for the final presentation, external critics will be invited.</p>	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1TWF010	The Why Factory Design Studio: Design lab I	12
Responsible Instructor	Prof.ir. W.G.M. Maas	
Responsible Instructor	F.M. Madrazo Salazar	
Course Coordinator	J. Arpa Fernandez	
Instructor	F.M. Madrazo Salazar	
Instructor	Prof.ir. W.G.M. Maas	
Co-responsible for assignments	S. Gargaretas	
Contact Hours / Week x/x/x/x	6 hours per week	
Education Period	1 2	
Start Education	1	
Exam Period	none	
Course Language	English	
Course Contents	<p>This course is a MSc1 studio, and is organized as a think tank. Studios at The Why Factory are content-driven design and research studios with a practical and theoretical scope. MSc1 studios are research labs and platforms that aim to analyse, theorize and construct future cities. They conduct a variety of investigations within the given world, and produce future scenarios beyond it: from universal to specific and global to local.</p> <p>MSc1 studios start with a specific brief and a statement on the future of urban life. Based on the brief, future scenarios will be developed leading to visionary, city-related designs.</p> <p>Students develop their specific approach to the brief and define the necessary scientific research. Calculations, simulations or modelling to support the studio work are elaborated in a parallel seminar: the Future Models seminar.</p> <p>The results of the research lead to a design project with consequent logic, convincing argumentation and illustrative and fantastic visuals.</p>	
Study Goals	<p>Upon completion of the Master 1, 2, 3 & 4 studio trajectory, the student:</p> <ul style="list-style-type: none"> - Has developed the necessary skills in architectural design that satisfy programmatic, aesthetic and technical requirements. During the Masters trajectory, the complexity of the architectural design increases, leading to the level required for professional practice. - During this period, skills are acquired to increasingly incorporate an understanding of design processes, architectural history and theory, art, technology and human sciences. - Additionally, skills are acquired to incorporate into design an understanding of the relation between buildings, spaces and society's needs, including environmental aspects. - During Master 1, 2, 3 & 4, skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing. - Together with the building technology training, during Master 1, 2, 3 & 4 skills are acquired to incorporate an understanding of the design process with regard to structural design, materialisation of buildings, comfort and climate control. 	
Education Method	Atelier: 150 hours Self study: 270 hours	
Course Relations	<p>MSc1 studios are linked to two other courses of The Why Factory: the Actualities Workshop (AR1TWF020) and the Future Models seminar (AR1TWF030).</p> <p>Students who join the MSc1 design studio AR1TWF010 as core course must join AR1TWF020 and AR1TWF030 as well.</p> <p>Students who join the design studio AR1TWF010 as an optional MSc2 studio are not obliged to join AR1TWF020 and AR1TWF030. However, we advise students to join the Future Models seminar AR1TWF030, as it may be helpful for the content of the design studio.</p>	
Assessment	Presentation	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

MSc 3 HA

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

MSc3 Adapting 20th century Heritage

AR3A160	Lecture Series Research Methods	6
Responsible Instructor	Dr.ir. P.J. Teerds	
Responsible Instructor	Dr.ir. K.M. Havik	
Course Coordinator	Dr.ir. P.J. Teerds	
Instructor	Dipl.ing. R.A. Gorny	
Instructor	M.F. Berkers	
Contact Hours / Week x/x/x/x	28 hours per quarter	
Education Period	1 3	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	General Master 2 level of knowledge.	
Course Contents	The lecture series will allow MSc 3 students from all the departments and chairs of our Faculty to reflect on and explore a series of methodological approaches, which should strengthen their architectural positions in the graduation studio, towards the conclusion of their formative process and the consequent obtainment of the corresponding degree.	
	Students involved in this course are expected to operate at a final year Masters level, meaning they are responsible for performing critically within the series of concepts presented in the course; as well as individually fulfilling course requirements such as being acknowledged with the basics of scientific writing, formulating hypotheses and investigating at a level equivalent to their standing within the curricular track.	
	This lecture series will address scientific integrity to make sure that architecture students develop the necessary skills for integer research approaches while being aware of the societal, political, physical and environmental impacts their research and design work has.	
Study Goals	The lecture series aims to:	
	- Take advantage of the magnitude and diversity of the series. The line-up of lecturers, paired to the differences among the academic tracks followed by students from several chairs and departments, should substantially enhance each discussion, and promote creative approaches to each of the topics discussed.	
	- Endow the students with clear knowledge of the heuristic nature of their work. The central thesis of the course is that all architectural activity is an exploration within identifiable disciplinary fields of experimentation, based on equally identifiable epistememes. Awareness of that explorative/cognitive capacity of architecture we sustain is a crucial element in the formation of an architect.	
	- Present the students with a selection of relevant and progressive architectural methodologies and analytical strategies that are currently being used and discussed within the A+BE academic community and in other outstanding educational institutions.	
	- Invite students to become engaged in these discussions actively, in order for their graduation processes to constitute real contributions to the professional debate that feeds our Faculty. It is expected that, with the information provided in this course, each graduation process aims to produce additional architectural knowledge in the face of established and ongoing research programs.	
	- Focus on moral sensibility, analysis, creativity, judgment, and skills regarding architectural ethics when developing specific expertise.	
Education Method	The course comprises two, parallel activities: A series of lectures and the preparation of a position paper.	
	The lecture series is made up of seven sessions. Six have defined topics, the first is introductory.	
	Each lecture session includes a 30+ min. presentation by a lecturer, a 30+ min presentation by a group of students, and a 30+ minute series of Q&A, presented to both lecturer and students.	
	Each guest lecturer is responsible for submitting on the fore a reference text for students to prepare the session, and a paper of her authorship that exposes, summarizes or complements her presentation. Both documents will be made available to the whole group of students with sufficient anticipation.	
	A group of students will be responsible for preparing each lecture. These groups will be formed during the course intro, and will divide themselves into a subgroup in charge of presenting the topic, and other subgroups in charge of preparing a series of debate topics and questions, for the closing discussion.	
	The whole group of students in charge of preparing each session will participate in a workshop, in which they will be guided in the development of their presentation and the construction of different positions within the chosen topic, looking forward to the debate. These workshops will take place on Monday mornings, and will be tutored by the coordinators of the lecture series and/or staff from the chair of Methods and Analysis.	
	Before entering each lecture session, the group of presenting/debating students will hand in a paper of their authorship (2000 words, aprox.) that exposes, summarizes or complements their presentation, the images that accompany their talk, the questions and debate topics developed to feed the debate, and any other addenda they consider necessary to support their understanding of the topic.	
Literature and Study Materials	A reader will be distributed via Blackboard/Brightspace	
Assessment	Each student is responsible to elaborate on her own reflections regarding the course, the debates, the literature that will be provided and suggested, and her own graduation process, by producing an individual position paper (aprox. 2000 2500 words), following scientific standards of writing and structuring her topics (acknowledging a state of the art for a particular discussion, for example) towards the construction of a methodological apparatus in affinity with her own intentions and inclinations.	
	Upon request, specific tutoring/workshops for this second component are available, in the same group format utilized for the preparation of the sessions.	
	In order to attend one of these tutorials, interested students must submit a full draft of their essay, including their name, student number and current chair/graduation studio. The submission deadline for this draft will be specified at the beginning of the period.	
	The course coordination will group the drafts and submit them to available tutors, by topic affinity. These tutors will read the drafts and subsequently organize a workshop with small groups of students. The aim of these workshops are to clarify doubts, elaborate on formal and stylistic concepts, and contribute thematically to the development of the final versions of the papers.	
	The fact that extra tutoring is available does not mean that the students are not encouraged to also seek additional support from their teachers in the other courses that constitute the graduation track.	
	Position papers are expected to be approximately 2000 2500 words in length, and should comply with academic and scientific standards in terms of form and style.	
	The fundamental aim of this assignment is to enable students to formulate a sound and consistent architectural position, in the	

face of the broader discussions presented as a partial state of the art of professional discussion, both within our Faculty and in contemporary architecture culture.

Articulating a position requires knowledge and understanding of a diverse array of postures, which are carefully considered in response to the problems of our time. Getting acquainted with diverse sources, authors and architectural examples; articulating the information contained in these sources; abstracting and operating with the useful and/or relevant ideas they represent; and (hopefully) further elaborating them into progressive architectural models; are all goals of this exercise.

It is assumed that the reflections generated during the course, and the resulting position paper, are active components of the broader exploration that is the graduation project. Research, reflection, discursive elaboration and historical contextualization are fundamental parts of a complete architectural intervention, meant to perform in site- and cultural-specific conditions, but also in the broader intellectual framework that is the architecture of our time.

In this sense, reflections should elaborate on the central concepts, methods and tools employed in the development of the architectural explorations leading to the Masters degree, at a level that transcends the simple description of steps taken in the elaboration of a project.

Cases of plagiarism will be dealt with according to standard procedures established by the corresponding authorities within the University.

Special Information

Each period will include a normal deadline for the presentation of the final position papers. Papers handed in within this deadline will be graded normally.

An extra hand-in moment will be offered for late papers, around the middle of the following academic period. Papers presented for this extra hand-in moment will only be evaluated in terms of pass (6,0/10,0) and fail (5,0/10,0 and under).

Remarks

Position papers will be evaluated on the following items:

- Has a question been clearly defined?
- Has the question been developed beyond its initial formulation?
- Does the paper acknowledge a state of the art, regarding this question?
- Has a position been taken, in relation to this state of the art?
- Is the paper coherent/concise?
- Does the paper follow a clear methodology?
- Are the sources pertinent, and well used?
- Is the language adequate?

Period of Education

Lectures take place during the first quarter of the period.

The second quarter of the period is used for the production of final position papers.

Individualized tutoring is offered upon request, to students who require extra help in the process of writing their papers, during this second quarter.

Course evaluation

The course will be graded on the basis of a final, position paper, worth 100% of the grade assignable to the Lecture Series. This position paper is expected to range between 2000-2500 words, and must be submitted before a specified deadline.

Only papers accepted and graded with a mark above 5,0/10,0 will be eligible for re-takes or further corrections.

Close attention must be paid to the fact that a passing grade in this course is necessary to apply for a Studio P4 presentation. Please note that the deadline for the presentation of these papers is indicated since the very beginning of the semester. This should allow you to plan the development of your essay without interfering with other deadlines. Conflicts with other courses should be negotiated with the Board of Examiners.

AR3AH100	Heritage and Architecture Graduation Studio 'Adapting 20C Heritage'	15
Responsible Instructor	Ir. L.G.K. Spoormans	
Course Coordinator	Ir. L.G.K. Spoormans	
Instructor	Prof.ir. W. de Jonge	
Instructor	A.C. de Ridder	
Instructor	Ir. J. Roos	
Instructor	Ir. L.G.K. Spoormans	
Instructor	Ir. W.L.E.C. Meijers	
Instructor	Ir. W. Willers	
Contact Hours / Week x/x/x/x	X / X / X / X	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Required for	AR4AH100	
Course Contents	<p>The AR3AH100 Graduation Studio focusses on Adapting 20C Heritage. What is the essence of this young heritage and what is its status? How can we adapt these buildings and ensembles to make them sustainable and future proof without losing their values?</p> <p>In this course students create a preliminary redesign for a selected building or ensemble and its context. Students individually re-evaluate and synthesise the H&A-analysis and report (from analysis courses prior to AR3Ar111) into a concluding document, formulate starting points and translate these to an intervention strategy and a meaningful preliminary design.</p> <p>Based on the research in the first quarter (analysis results) students work individually on a design brief. Spatial, technical, functional, cultural, historical and economical aspects are taken into account. Students discuss the relevance of a chosen topic and context. The academic framework is explored and theoretical and practical references are studied. Students explore a range of scenario's combining heritage values and program requirements, and study references on concept, strategy, materialisation, detailing, program etc. After the selection of a design concept, students create a preliminary design that shows coherence and correctness, and a meaningful translation of intervention strategy in the spatial, functional, urban, material and technical domain.</p> <p>During the course, students practice to present their design proposals both graphically and orally, and demonstrate logical argumentation and evidence based choices.</p> <p>In the graduation process students are assessed in a P2 exam which takes the form of a presentation. Design and research are assessed, regarding to the overall criterion:</p> <ul style="list-style-type: none"> - What is presented is coherent. It has meaning; it is correct and elaborated, as a whole and in its constituent parts. - That what is presented is sufficient to proceed (to MSc4) 	
Study Goals	<p>The student is able to:</p> <ul style="list-style-type: none"> - individually draw conclusions from group analyses and present these in an academically substantiated and comprehensive report as well as through a verbal presentation, - translate the research results from the H&A-analysis (from courses prior to AR3Ar111) into opportunities, obligations and dilemmas, and can prioritize and incorporate the key values into meaningful preliminary design, - formulate a design brief that is relevant for contemporary academic and social society, - create a preliminary redesign for a building or ensemble that he/she has chosen as a case study, - explain and present the design as a result of study and selection of several design variants. 	
Education Method	Atelier counselling	
Course Relations	AR3AR022, AR3AR032, AR3AR142, AR3A160	
Assessment	Drawings, Written report, Presentation	
Period of Education	Semester	

AR3AR022	Analysis of Heritage and Cultural Value	3
Responsible Instructor	Dr. M.T.A. van Thoor	
Responsible Instructor	Dr. S.A. Stroux	
Course Coordinator	Dr. S.A. Stroux	
Instructor	Dr. S.A. Stroux	
Instructor	Dr. M.T.A. van Thoor	
Responsible for assignments	Dr. I. Nevzgodin	
Responsible for assignments	N.J. Clarke	
Contact Hours / Week x/x/x/x	2 hours per week	
Education Period	1 3	
Start Education	1 3	
Exam Period	1 2 3 4	
Course Language	English	
Course Contents	<p>Students of Heritage & Architecture have to position themselves as architects in the debate on the cultural values of built heritage and design strategies for conservation and adaptive re-use. Hence, the articulation and understanding of values is of great importance when design decisions have to be made regarding what to conserve, what to adapt, and how to prioritise in the case of conflicting values.</p> <p>In the course Analysis of Heritage & Cultural Value, students investigate the subject of their graduation project: an existing building and its context and use, as well as the different buildings phases and changes up to the current situation. Building Archaeological surveys and Cultural Value Assessments produced by experts, primary literature, original drawings and historical maps and photographs form important sources of information for this process. Students observe, explore, identify and prioritise the cultural values of the existing building and site in order to formulate starting points for a meaningful redesign. The Analysis of Cultural Values determines the cultural historical significance of the building and its context. Together with AR3AR142 Analysis of Heritage & Design and AR3AR032 Analysis of Heritage & Technology, the combined H&A-Analysis contributes to the body of knowledge for the graduation studio. Students conduct the H&A-Analysis using an analysis tool. The H&A-Analysis results in one academically substantiated report. The report systematically presents schemes, drawings, explanatory text, references, sources, etc. Progress and quality of the work are assessed through weekly consultation and (midterm) presentations.</p> <p>In the related course AR3AR111 Heritage & Architecture Design Studio, students individually re-evaluate and synthesise the H&A-Analysis and report into a concluding document. In the related course AR3A160 Research Methods, students formulate their position as an architect confronted with the current design assignment.</p>	
Study Goals	<p>The student:</p> <ul style="list-style-type: none"> - is able to explain the concept of cultural and (building-) historical values and methods of cultural value assessment, - is able to identify and relate cultural values through use of analysis tools, - is able to depict the cultural values (by means of sketched, diagrams, photo collages, etc.), - can critically reflect on the cultural values. 	
Education Method	Atelier counselling	
Course Relations	AR3AR142, AR3AR032, AR3A160 and AR3AR111	
Literature and Study Materials	<p>Core texts:</p> <ul style="list-style-type: none"> - Brand, S. 1994. How Buildings Learn. New York: Penguin. - Hendriks, L. and Van der Hoeve, J. 2009. Guidelines for Building Archeological Research. Den Haag: Rijksdienst voor het Cultureel Erfgoed.(Available from: https://cultureelerfgoed.nl/publicaties/guidelines-for-building-archeological-research) - De la Torre, M.(ed.). 2002. Assessing the Values of Cultural Heritage. Research Report. Los Angeles: Getty Conservation Institute. - Kuipers, M. C. and De Jonge, W. 2017. Designing from Heritage Strategies for Conservation and Conversion. Delft: Delft University of Technology. - Riegl, A. 'The Modern Cult of Monuments: Its Essence and Its Development'. In: Price, N. S., Kirby Talley, M., and Melucco - Vaccaro, A. 1996. Historical and philosophical issues in the conservation of cultural heritage (Readings in conservation, 1996: 1). Los Angeles: Getty Conservation Institute. pp. 69-83. <p>Additional: Building Archaeological Analysis and Cultural Value Assessment reports, scientific publications, primary literature with respect to the history of the building and its context.</p>	
Assessment	Written report	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Quarter	
Leerstoel	Heritage & Cultural Value	
Minimum aantal deelnemers	12	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR3AR032	Analysis of Heritage and Technology	3
Responsible Instructor	Ir. F.W.A. Koopman	
Course Coordinator	Ir. F.W.A. Koopman	
Instructor	Ir. F.W.A. Koopman	
Instructor	Dr.ir. W.J. Quist	
Contact Hours / Week x/x/x/x	2 hours per week	
Education Period	1 3	
Start Education	1 3	
Exam Period	1 2 3 4	
Course Language	English	
Required for	AR3AR111 RMIT Graduation Studio.	
Course Contents	<p>In this course, students make an analysis of the technical aspects of a selected building or ensemble. They describe and document the technical characteristics of the building. The central research question is: What are the technical qualities of the building? Research is conducted into the current state of the load-bearing structure, the materialization and detailing of the existing building and useful building services and installations. As a result of the analysis the state of conservation of the building is determined.</p> <p>In the course Analysis of Heritage & Technology, students investigate the subject of their graduation project: an existing building and its context and use, as well as the different buildings phases and changes up to the current situation. Building Archaeological Research reports and Cultural Value Assessments produced by experts, primary literature, original drawings and historical maps and photographs form important sources of information for this process. Students observe, explore, identify and document the relevant technical aspects of the existing building, in order to formulate starting points for a meaningful redesign. Together with AR3AR022 Analysis of Heritage & Cultural Value and AR3AR142 Analysis of Heritage & Design, the combined H&A-Analysis contributes to the body of knowledge for the graduation studio. Students conduct the H&A-Analysis using an analysis tool. The H&A-Analysis results in one academically substantiated report. The report systematically presents schemes, drawings, explanatory text, references, sources, etc. Progress and quality of the work are assessed through weekly consultation and (midterm) presentations.</p> <p>In the related course AR3AR111 Heritage & Architecture Design Studio, students individually re-evaluate and synthesize the H&A-Analysis and report into a concluding document.</p> <p>Study Goals</p> <p>The student:</p> <ul style="list-style-type: none"> - is able to explain the applied techniques that create the architecture, as well as their place in history - is able to identify and relate technical qualities through use of analysis tools - is competent in translating data into information and visualize and depict technical qualities (by means of sketches, diagrams, drawings, models) - can critically reflect on technical characteristics and on the results of the research <p>Education Method</p> <p>Atelier: 21 hours Self study: 63 hours</p> <p>Literature and Study Materials</p> <p>Core texts: Hendriks, L. and Van der Hoeve, J. (2009). Guidelines for Building Archaeological Research. Den Haag: Rijksdienst voor het Cultureel Erfgoed. (Available from: https://cultureelerfgoed.nl/publicaties/guidelines-for-building-archaeological-research) De la Torre, M. (ed.) (2002). Assessing the Values of Cultural Heritage. Research Report. Los Angeles: Getty Conservation Institute. Zijlstra, H. (2009). Analyzing Buildings from Context to Detail in time: ABCD (in time) research method. Amsterdam: IOS Press. Unwin S. (2009). Analyzing Architecture. London: Routledge.</p> <p>Additional: Building Archaeological Research and Cultural Value Assessment reports, scientific publications, primary literature with respect to the history of the building and its context.</p> <p>Assessment</p> <p>Written report</p> <p>Special Information</p> <p>The maximum marking period is 10 work days.</p> <p>Period of Education</p> <p>Quarter</p> <p>Course evaluation</p> <p>For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/</p>	

AR3AR142	Analysis of Heritage and Design	3
Responsible Instructor	Prof.ir. W. de Jonge	
Course Coordinator	Ir. L.G.K. Spoormans	
Instructor	Prof.ir. W. de Jonge	
Instructor	Ir. J. Roos	
Instructor	Ir. L.G.K. Spoormans	
Instructor	Ir. W.L.E.C. Meijers	
Instructor	Ir. A.C. de Ridder	
Instructor	Ir. W. Willers	
Instructor	Dr.ir. H. Zijlstra	
Contact Hours / Week x/x/x/x	2 hours per week	
Education Period	1 3	
Start Education	1 3	
Exam Period	1 2 3 4	
Course Language	English	
Course Contents	<p>The analysis of Heritage & Design is about understanding the sequence of city, landscape, environment, building ensembles, building, elements, space, light, textures, atmosphere, smell, sound and feeling. The analysis concerns qualitative and quantitative, tangible and intangible aspects. For students of Heritage & Architecture, it is of great importance to comprehend the character of the place, before developing an intervention strategy. In order to design the future, you need to understand the past.</p> <p>In the course Analysis of Heritage & Design, students investigate the subject of their graduation project: an existing building and its context and use, as well as the different buildings phases and changes up to the current situation. Historical and recent reports on building and context and students personal observations, documented by sketches, photographs and schemes form important sources of information for this process. Students observe, explore, identify and prioritise the architectural qualities of the existing building and site in order to formulate starting points for a meaningful redesign. The Analysis of Heritage & Design determines the architectural character of the place. Together with AR3AR032 Analysis of Heritage & Technology and AR3AR022 Analysis of Heritage & Cultural Value, the combined H&A-Analysis contributes to the body of knowledge for the graduation studio. Students conduct the H&A-Analysis using an analysis tool. The H&A-Analysis results in one academically substantiated report. The report systematically presents schemes, drawings, explanatory text, references, sources, etc. Progress and quality of the work are assessed through weekly consultation and (midterm) presentations.</p> <p>In the related course AR3AH100/AR3AH110 Heritage & Architecture Design Studio, students individually re-evaluate and synthesise the H&A-Analysis and report into a concluding document. In the related course AR3A160 Research Methods, students formulate their position as an architect confronted with the current design assignment.</p>	
Study Goals	<p>The student:</p> <ul style="list-style-type: none"> - is able to explain the character of the place in relation to its architectural and contextual qualities, - is able to identify and relate architectural qualities through use of analysis tools, - is able to depict the architectural qualities (by means of sketched, diagrams, photo collages, etc.), - can critically reflect on the architectural qualities. 	
Education Method	Atelier counselling	
Course Relations	AR3AR022, AR3AR032, AR3AH100/AR3AH110 and AR3A160	
Literature and Study Materials	<p>Brand, S., 1994. How Buildings Learn. New York: Penguin.</p> <p>Cullen, G., 1973. The Concise. Townscape, London: The Architectural Press.</p> <p>Farrelly, L., 2011. Drawing for Urban Design. London: Laurence King Publishing Ltd.</p> <p>Foscari, G., 2014. Elements of Venice. Zürich: Lars Müller Publishers.</p> <p>Koolhaas, R. ea, 2014. Elements. Venice: Marsilio Editori.</p> <p>Lynch, K., 1960. The image of the city. Cambridge: MIT.</p> <p>Radford, A., 2014. The Elements of Modern Architecture. London: Thames and Hudson.</p> <p>Roos, J., 2007. Discovering the assignment. Delft: VSSD.</p> <p>Zijlstra, H., 2009. Analysing Buildings from Context to Detail in time: ABCD (in time) research method. Amsterdam: IOS Press.</p>	
Assessment	Written report	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Quarter	
Minimum aantal deelnemers	12	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

MSc3 Revitalising Heritage

AR3A160	Lecture Series Research Methods	6
Responsible Instructor	Dr.ir. P.J. Teerds	
Responsible Instructor	Dr.ir. K.M. Havik	
Course Coordinator	Dr.ir. P.J. Teerds	
Instructor	Dipl.ing. R.A. Gorny	
Instructor	M.F. Berkers	
Contact Hours / Week	28 hours per quarter	
x/x/x/x		
Education Period	1 3	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	General Master 2 level of knowledge.	
Course Contents	The lecture series will allow MSc 3 students from all the departments and chairs of our Faculty to reflect on and explore a series of methodological approaches, which should strengthen their architectural positions in the graduation studio, towards the conclusion of their formative process and the consequent obtainment of the corresponding degree.	
	Students involved in this course are expected to operate at a final year Masters level, meaning they are responsible for performing critically within the series of concepts presented in the course; as well as individually fulfilling course requirements such as being acknowledged with the basics of scientific writing, formulating hypotheses and investigating at a level equivalent to their standing within the curricular track.	
	This lecture series will address scientific integrity to make sure that architecture students develop the necessary skills for integer research approaches while being aware of the societal, political, physical and environmental impacts their research and design work has.	
Study Goals	The lecture series aims to:	
	- Take advantage of the magnitude and diversity of the series. The line-up of lecturers, paired to the differences among the academic tracks followed by students from several chairs and departments, should substantially enhance each discussion, and promote creative approaches to each of the topics discussed.	
	- Endow the students with clear knowledge of the heuristic nature of their work. The central thesis of the course is that all architectural activity is an exploration within identifiable disciplinary fields of experimentation, based on equally identifiable epistememes. Awareness of that explorative/cognitive capacity of architecture we sustain is a crucial element in the formation of an architect.	
	- Present the students with a selection of relevant and progressive architectural methodologies and analytical strategies that are currently being used and discussed within the A+BE academic community and in other outstanding educational institutions.	
	- Invite students to become engaged in these discussions actively, in order for their graduation processes to constitute real contributions to the professional debate that feeds our Faculty. It is expected that, with the information provided in this course, each graduation process aims to produce additional architectural knowledge in the face of established and ongoing research programs.	
	- Focus on moral sensibility, analysis, creativity, judgment, and skills regarding architectural ethics when developing specific expertise.	
Education Method	The course comprises two, parallel activities: A series of lectures and the preparation of a position paper.	
	The lecture series is made up of seven sessions. Six have defined topics, the first is introductory.	
	Each lecture session includes a 30+ min. presentation by a lecturer, a 30+ min presentation by a group of students, and a 30+ minute series of Q&A, presented to both lecturer and students.	
	Each guest lecturer is responsible for submitting on the fore a reference text for students to prepare the session, and a paper of her authorship that exposes, summarizes or complements her presentation. Both documents will be made available to the whole group of students with sufficient anticipation.	
	A group of students will be responsible for preparing each lecture. These groups will be formed during the course intro, and will divide themselves into a subgroup in charge of presenting the topic, and other subgroups in charge of preparing a series of debate topics and questions, for the closing discussion.	
	The whole group of students in charge of preparing each session will participate in a workshop, in which they will be guided in the development of their presentation and the construction of different positions within the chosen topic, looking forward to the debate. These workshops will take place on Monday mornings, and will be tutored by the coordinators of the lecture series and/or staff from the chair of Methods and Analysis.	
	Before entering each lecture session, the group of presenting/debating students will hand in a paper of their authorship (2000 words, aprox.) that exposes, summarizes or complements their presentation, the images that accompany their talk, the questions and debate topics developed to feed the debate, and any other addenda they consider necessary to support their understanding of the topic.	
Literature and Study Materials	A reader will be distributed via Blackboard/Brightspace	
Assessment	Each student is responsible to elaborate on her own reflections regarding the course, the debates, the literature that will be provided and suggested, and her own graduation process, by producing an individual position paper (aprox. 2000 2500 words), following scientific standards of writing and structuring her topics (acknowledging a state of the art for a particular discussion, for example) towards the construction of a methodological apparatus in affinity with her own intentions and inclinations.	
	Upon request, specific tutoring/workshops for this second component are available, in the same group format utilized for the preparation of the sessions.	
	In order to attend one of these tutorials, interested students must submit a full draft of their essay, including their name, student number and current chair/graduation studio. The submission deadline for this draft will be specified at the beginning of the period.	
	The course coordination will group the drafts and submit them to available tutors, by topic affinity. These tutors will read the drafts and subsequently organize a workshop with small groups of students. The aim of these workshops are to clarify doubts, elaborate on formal and stylistic concepts, and contribute thematically to the development of the final versions of the papers.	
	The fact that extra tutoring is available does not mean that the students are not encouraged to also seek additional support from their teachers in the other courses that constitute the graduation track.	
	Position papers are expected to be approximately 2000 2500 words in length, and should comply with academic and scientific standards in terms of form and style.	
	The fundamental aim of this assignment is to enable students to formulate a sound and consistent architectural position, in the	

face of the broader discussions presented as a partial state of the art of professional discussion, both within our Faculty and in contemporary architecture culture.

Articulating a position requires knowledge and understanding of a diverse array of postures, which are carefully considered in response to the problems of our time. Getting acquainted with diverse sources, authors and architectural examples; articulating the information contained in these sources; abstracting and operating with the useful and/or relevant ideas they represent; and (hopefully) further elaborating them into progressive architectural models; are all goals of this exercise.

It is assumed that the reflections generated during the course, and the resulting position paper, are active components of the broader exploration that is the graduation project. Research, reflection, discursive elaboration and historical contextualization are fundamental parts of a complete architectural intervention, meant to perform in site- and cultural-specific conditions, but also in the broader intellectual framework that is the architecture of our time.

In this sense, reflections should elaborate on the central concepts, methods and tools employed in the development of the architectural explorations leading to the Masters degree, at a level that transcends the simple description of steps taken in the elaboration of a project.

Cases of plagiarism will be dealt with according to standard procedures established by the corresponding authorities within the University.

Special Information

Each period will include a normal deadline for the presentation of the final position papers. Papers handed in within this deadline will be graded normally.

An extra hand-in moment will be offered for late papers, around the middle of the following academic period. Papers presented for this extra hand-in moment will only be evaluated in terms of pass (6,0/10,0) and fail (5,0/10,0 and under).

Remarks

Position papers will be evaluated on the following items:

- Has a question been clearly defined?
- Has the question been developed beyond its initial formulation?
- Does the paper acknowledge a state of the art, regarding this question?
- Has a position been taken, in relation to this state of the art?
- Is the paper coherent/concise?
- Does the paper follow a clear methodology?
- Are the sources pertinent, and well used?
- Is the language adequate?

Period of Education

Lectures take place during the first quarter of the period.

The second quarter of the period is used for the production of final position papers.

Individualized tutoring is offered upon request, to students who require extra help in the process of writing their papersk, during this second quarter.

Course evaluation

The course will be graded on the basis of a final, position paper, worth 100% of the grade assignable to the Lecture Series. This position paper is expected to range between 2000-2500 words, and must be submitted before a specified deadline.

Only papers accepted and graded with a mark above 5,0/10,0 will be eligible for re-takes or further corrections.

Close attention must be paid to the fact that a passing grade in this course is necessary to apply for a Studio P4 presentation. Please note that the deadline for the presentation of these papers is indicated since the very beginning of the semester. This should allow you to plan the development of your essay without interfering with other deadlines. Conflicts with other courses should be negotiated with the Board of Examiners.

AR3AH110	Heritage and Architecture Graduation Studio 'Revitalising Heritage'	15
Responsible Instructor	Ir. L.G.K. Spoormans	
Course Coordinator	Ir. L.G.K. Spoormans	
Instructor	Prof.ir. W. de Jonge	
Instructor	A.C. de Ridder	
Instructor	Ir. J. Roos	
Instructor	Ir. L.G.K. Spoormans	
Instructor	Ir. W.L.E.C. Meijers	
Instructor	Ir. W. Willers	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Required for	AR4AH110	
Course Contents	<p>The AR3AH110 Graduation Studio focusses on Revitalising Heritage. How to bring new life to abandoned or dilapidated buildings or areas? What combination of architectural interventions and functional program leads to preservation by revitalisation? What is the capacity for change?</p> <p>In this course students create a preliminary redesign for a selected building or ensemble and its context. Students individually re-evaluate and synthesise the H&A-analysis and report (from analysis courses prior to AR3Ar111) into a concluding document, formulate starting points and translate these to an intervention strategy and a meaningful preliminary design.</p> <p>Based on the research in the first quarter (analysis results) students work individually on a design brief. Spatial, technical, functional, cultural, historical and economical aspects are taken into account. Students discuss the relevance of a chosen topic and context. The academic framework is explored and theoretical and practical references are studied. Students explore a range of scenario's combining heritage values and program requirements, and study references on concept, strategy, materialisation, detailing, program etc. After the selection of a design concept, students create a preliminary design that shows coherence and correctness, and a meaningful translation of intervention strategy in the spatial, functional, urban, material and technical domain. During the course, students practice to present their design proposals both graphically and orally, and demonstrate logical argumentation and evidence based choices.</p> <p>In the graduation process students are assessed in a P2 exam which takes the form of a presentation. Design and research are assessed, regarding to the overall criterion:</p> <ul style="list-style-type: none"> - What is presented is coherent. It has meaning; it is correct and elaborated, as a whole and in its constituent parts. - That what is presented is sufficient to proceed (to MSc4) 	
Study Goals	<p>The student is able to:</p> <ul style="list-style-type: none"> - individually draw conclusions from group analyses and present these in an academically substantiated and comprehensive report as well as through a verbal presentation, - translate the research results from the H&A-analysis (from courses prior to AR3Ar111) into opportunities, obligations and dilemmas, and can prioritize and incorporate the key values into meaningful preliminary design, - formulate a design brief that is relevant for contemporary academic and social society, - create a preliminary redesign for a building or ensemble that he/she has chosen as a case study, - explain and present the design as a result of study and selection of several design variants. 	
Education Method	Atelier counselling	
Course Relations	AR3AR022, AR3AR032, AR3AR142, AR3A160	
Assessment	Drawings, Written report, Presentation	
Period of Education	Semester	

AR3AR022	Analysis of Heritage and Cultural Value	3
Responsible Instructor	Dr. M.T.A. van Thoor	
Responsible Instructor	Dr. S.A. Stroux	
Course Coordinator	Dr. S.A. Stroux	
Instructor	Dr. S.A. Stroux	
Instructor	Dr. M.T.A. van Thoor	
Responsible for assignments	Dr. I. Nevzgodin	
Responsible for assignments	N.J. Clarke	
Contact Hours / Week x/x/x/x	2 hours per week	
Education Period	1 3	
Start Education	1 3	
Exam Period	1 2 3 4	
Course Language	English	
Course Contents	<p>Students of Heritage & Architecture have to position themselves as architects in the debate on the cultural values of built heritage and design strategies for conservation and adaptive re-use. Hence, the articulation and understanding of values is of great importance when design decisions have to be made regarding what to conserve, what to adapt, and how to prioritise in the case of conflicting values.</p> <p>In the course Analysis of Heritage & Cultural Value, students investigate the subject of their graduation project: an existing building and its context and use, as well as the different buildings phases and changes up to the current situation. Building Archaeological surveys and Cultural Value Assessments produced by experts, primary literature, original drawings and historical maps and photographs form important sources of information for this process. Students observe, explore, identify and prioritise the cultural values of the existing building and site in order to formulate starting points for a meaningful redesign. The Analysis of Cultural Values determines the cultural historical significance of the building and its context. Together with AR3AR142 Analysis of Heritage & Design and AR3AR032 Analysis of Heritage & Technology, the combined H&A-Analysis contributes to the body of knowledge for the graduation studio. Students conduct the H&A-Analysis using an analysis tool. The H&A-Analysis results in one academically substantiated report. The report systematically presents schemes, drawings, explanatory text, references, sources, etc. Progress and quality of the work are assessed through weekly consultation and (midterm) presentations.</p> <p>In the related course AR3AR111 Heritage & Architecture Design Studio, students individually re-evaluate and synthesise the H&A-Analysis and report into a concluding document. In the related course AR3A160 Research Methods, students formulate their position as an architect confronted with the current design assignment.</p>	
Study Goals	<p>The student:</p> <ul style="list-style-type: none"> - is able to explain the concept of cultural and (building-) historical values and methods of cultural value assessment, - is able to identify and relate cultural values through use of analysis tools, - is able to depict the cultural values (by means of sketched, diagrams, photo collages, etc.), - can critically reflect on the cultural values. 	
Education Method	Atelier counselling	
Course Relations	AR3AR142, AR3AR032, AR3A160 and AR3AR111	
Literature and Study Materials	<p>Core texts:</p> <ul style="list-style-type: none"> - Brand, S. 1994. How Buildings Learn. New York: Penguin. - Hendriks, L. and Van der Hoeve, J. 2009. Guidelines for Building Archeological Research. Den Haag: Rijksdienst voor het Cultureel Erfgoed.(Available from: https://cultureelerfgoed.nl/publicaties/guidelines-for-building-archeological-research) - De la Torre, M.(ed.). 2002. Assessing the Values of Cultural Heritage. Research Report. Los Angeles: Getty Conservation Institute. - Kuipers, M. C. and De Jonge, W. 2017. Designing from Heritage Strategies for Conservation and Conversion. Delft: Delft University of Technology. - Riegl, A. 'The Modern Cult of Monuments: Its Essence and Its Development'. In: Price, N. S., Kirby Talley, M., and Melucco - Vaccaro, A. 1996. Historical and philosophical issues in the conservation of cultural heritage (Readings in conservation, 1996: 1). Los Angeles: Getty Conservation Institute. pp. 69-83. <p>Additional: Building Archaeological Analysis and Cultural Value Assessment reports, scientific publications, primary literature with respect to the history of the building and its context.</p>	
Assessment	Written report	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Quarter	
Leerstoel	Heritage & Cultural Value	
Minimum aantal deelnemers	12	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR3AR032	Analysis of Heritage and Technology	3
Responsible Instructor	Ir. F.W.A. Koopman	
Course Coordinator	Ir. F.W.A. Koopman	
Instructor	Ir. F.W.A. Koopman	
Instructor	Dr.ir. W.J. Quist	
Contact Hours / Week x/x/x/x	2 hours per week	
Education Period	1 3	
Start Education	1 3	
Exam Period	1 2 3 4	
Course Language	English	
Required for	AR3AR111 RMIT Graduation Studio.	
Course Contents	<p>In this course, students make an analysis of the technical aspects of a selected building or ensemble. They describe and document the technical characteristics of the building. The central research question is: What are the technical qualities of the building? Research is conducted into the current state of the load-bearing structure, the materialization and detailing of the existing building and useful building services and installations. As a result of the analysis the state of conservation of the building is determined.</p> <p>In the course Analysis of Heritage & Technology, students investigate the subject of their graduation project: an existing building and its context and use, as well as the different buildings phases and changes up to the current situation. Building Archaeological Research reports and Cultural Value Assessments produced by experts, primary literature, original drawings and historical maps and photographs form important sources of information for this process. Students observe, explore, identify and document the relevant technical aspects of the existing building, in order to formulate starting points for a meaningful redesign. Together with AR3AR022 Analysis of Heritage & Cultural Value and AR3AR142 Analysis of Heritage & Design, the combined H&A-Analysis contributes to the body of knowledge for the graduation studio. Students conduct the H&A-Analysis using an analysis tool. The H&A-Analysis results in one academically substantiated report. The report systematically presents schemes, drawings, explanatory text, references, sources, etc. Progress and quality of the work are assessed through weekly consultation and (midterm) presentations.</p> <p>In the related course AR3AR111 Heritage & Architecture Design Studio, students individually re-evaluate and synthesize the H&A-Analysis and report into a concluding document.</p>	
Study Goals	<p>The student:</p> <ul style="list-style-type: none"> - is able to explain the applied techniques that create the architecture, as well as their place in history - is able to identify and relate technical qualities through use of analysis tools - is competent in translating data into information and visualize and depict technical qualities (by means of sketches, diagrams, drawings, models) - can critically reflect on technical characteristics and on the results of the research 	
Education Method	Atelier: 21 hours Self study: 63 hours	
Literature and Study Materials	<p>Core texts:</p> <p>Hendriks, L. and Van der Hoeve, J. (2009). Guidelines for Building Archaeological Research. Den Haag: Rijksdienst voor het Cultureel Erfgoed. (Available from: https://cultureelerfgoed.nl/publicaties/guidelines-for-building-archaeological-research)</p> <p>De la Torre, M. (ed.) (2002). Assessing the Values of Cultural Heritage. Research Report. Los Angeles: Getty Conservation Institute.</p> <p>Zijlstra, H. (2009). Analyzing Buildings from Context to Detail in time: ABCD (in time) research method. Amsterdam: IOS Press.</p> <p>Unwin S. (2009). Analyzing Architecture. London: Routledge.</p>	
Assessment	Additional: Building Archaeological Research and Cultural Value Assessment reports, scientific publications, primary literature with respect to the history of the building and its context.	
Special Information	Written report	
Period of Education	The maximum marking period is 10 work days.	
Course evaluation	Quarter	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR3AR142	Analysis of Heritage and Design	3
Responsible Instructor	Prof.ir. W. de Jonge	
Course Coordinator	Ir. L.G.K. Spormans	
Instructor	Prof.ir. W. de Jonge	
Instructor	Ir. J. Roos	
Instructor	Ir. L.G.K. Spormans	
Instructor	Ir. W.L.E.C. Meijers	
Instructor	Ir. A.C. de Ridder	
Instructor	Ir. W. Willers	
Instructor	Dr.ir. H. Zijlstra	
Contact Hours / Week x/x/x/x	2 hours per week	
Education Period	1 3	
Start Education	1 3	
Exam Period	1 2 3 4	
Course Language	English	
Course Contents	<p>The analysis of Heritage & Design is about understanding the sequence of city, landscape, environment, building ensembles, building, elements, space, light, textures, atmosphere, smell, sound and feeling. The analysis concerns qualitative and quantitative, tangible and intangible aspects. For students of Heritage & Architecture, it is of great importance to comprehend the character of the place, before developing an intervention strategy. In order to design the future, you need to understand the past.</p> <p>In the course Analysis of Heritage & Design, students investigate the subject of their graduation project: an existing building and its context and use, as well as the different buildings phases and changes up to the current situation. Historical and recent reports on building and context and students personal observations, documented by sketches, photographs and schemes form important sources of information for this process. Students observe, explore, identify and prioritise the architectural qualities of the existing building and site in order to formulate starting points for a meaningful redesign. The Analysis of Heritage & Design determines the architectural character of the place. Together with AR3AR032 Analysis of Heritage & Technology and AR3AR022 Analysis of Heritage & Cultural Value, the combined H&A-Analysis contributes to the body of knowledge for the graduation studio. Students conduct the H&A-Analysis using an analysis tool. The H&A-Analysis results in one academically substantiated report. The report systematically presents schemes, drawings, explanatory text, references, sources, etc. Progress and quality of the work are assessed through weekly consultation and (midterm) presentations.</p> <p>In the related course AR3AH100/AR3AH110 Heritage & Architecture Design Studio, students individually re-evaluate and synthesise the H&A-Analysis and report into a concluding document. In the related course AR3A160 Research Methods, students formulate their position as an architect confronted with the current design assignment.</p>	
Study Goals	<p>The student:</p> <ul style="list-style-type: none"> - is able to explain the character of the place in relation to its architectural and contextual qualities, - is able to identify and relate architectural qualities through use of analysis tools, - is able to depict the architectural qualities (by means of sketched, diagrams, photo collages, etc.), - can critically reflect on the architectural qualities. 	
Education Method	Atelier counselling	
Course Relations	AR3AR022, AR3AR032, AR3AH100/AR3AH110 and AR3A160	
Literature and Study Materials	<p>Brand, S., 1994. How Buildings Learn. New York: Penguin. Cullen, G., 1973. The Concise. Townscape, London: The Architectural Press. Farrelly, L., 2011. Drawing for Urban Design. London: Laurence King Publishing Ltd. Foscari, G., 2014. Elements of Venice. Zürich: Lars Müller Publishers. Koolhaas, R. ea, 2014. Elements. Venice: Marsilio Editori. Lynch, K., 1960. The image of the city. Cambridge: MIT. Radford, A., 2014. The Elements of Modern Architecture. London: Thames and Hudson. Roos, J., 2007. Discovering the assignment. Delft: VSSD. Zijlstra, H., 2009. Analysing Buildings from Context to Detail in time: ABCD (in time) research method. Amsterdam: IOS Press.</p>	
Assessment	Written report	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Quarter	
Minimum aantal deelnemers	12	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

MSc 4 HA

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

MSc4 Adapting 20C Heritage

AR4AH100	Heritage and Architecture Graduation Studio 'Adapting 20C Heritage'	30
Responsible Instructor	Ir. L.G.K. Spormans	
Course Coordinator	Ir. L.G.K. Spormans	
Instructor	Prof.ir. W. de Jonge	
Instructor	A.C. de Ridder	
Instructor	Ir. J. Roos	
Instructor	Ir. L.G.K. Spormans	
Instructor	Ir. W.L.E.C. Meijers	
Instructor	Ir. W. Willers	
Education Period	1	
	2	
	3	
	4	
Start Education	1	
	3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	MSc3 Heritage & Architecture	
Course Contents	The AR4AH100 Graduation Studio focusses on Adapting 20C Heritage. What is the essence of this young heritage and what is its status? How can we adapt these buildings and ensembles to make them sustainable and future proof without losing their values?	
Study Goals	<p>The aim of the Heritage & Architecture graduation studio is to creating a developed redesign strongly based on the research conducted in MSc3. Strategies of conservation, intervention and transformation are explored and translated into an architectural and technical design. The design choices are based in an understanding and justified in relation to cultural value. Students individually create a developed design that shows coherence and correctness, and a meaningful translation of an intervention strategy into the spatial, functional, urban, material and technical design. Furthermore, they will position the project within a broader perspective of socio-cultural, historical, philosophical, economic and environmental contexts. In the graduation project the societal and disciplinary position and its relevance in relation to design ethics and intercultural issues are discussed. After reflective exploration and consideration, students present a detailed design project that addresses all-important aspects of architectural design, technology and cultural value.</p> <p>Upon completion of this studio, the student is able to:</p> <ul style="list-style-type: none"> - develop a design brief and create a developed redesign that presents spatial, functional, urban, material and technical quality, - position the project and its heritage aspects in a broader perspective of socio-cultural, historical, philosophical, economic and environmental contexts, - apply professional knowledge and design tools related to architecture, building technology and cultural value, - explain and justify design choices in relation to architectural design, technology and cultural values, - argue and reflect on the design product and process in relation to current architectural discourse, - demonstrate and employ moral sensibility, analysis, creativity, judgement, decision-making and argumentation skills regarding architectural ethics and his/her future role as architect, - explain and reflect on meaning and design development with relevant presentational means in a public presentation - communicate complex design ideas at an advanced level through verbal presentations, visual and written media. 	
Education Method	See the evaluation form 'Graduation Criteria Architecture P3', the assessment criteria of the 'Graduation Criteria Architecture P4/P5' of the Architecture Master track, and the 'Exit Qualifications' of the Master Architecture, Urbanism and Building Sciences.	
Assessment	Students, supervised by mentors, work individually and within the organisational structure of the graduation studios of Heritage & Architecture.	
Assessment	Viva voce examination, with visual presentation and supporting material, including drawings and models, as pertaining to the official requirements of the Faculty of Architecture, Urbanism and Building Sciences.	
Period of Education	Semester	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

MSc4 Revitalising Heritage

AR4AH110	Heritage and Architecture Graduation Studio 'Revitalising Heritage'	30
Responsible Instructor	Ir. L.G.K. Spormans	
Course Coordinator	Ir. L.G.K. Spormans	
Instructor	Prof.ir. W. de Jonge	
Instructor	A.C. de Ridder	
Instructor	Ir. J. Roos	
Instructor	Ir. L.G.K. Spormans	
Instructor	Ir. W.L.E.C. Meijers	
Instructor	Ir. W. Willers	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	MSc3 Heritage & Architecture	
Course Contents	<p>The AR4AH110 Graduation Studio focusses on Revitalising Heritage. How to bring new life to abandoned or dilapidated buildings or areas? What combination of architectural interventions and functional program leads to preservation by revitalisation? What is the capacity for change?</p> <p>The aim of the Heritage & Architecture graduation studio is to creating a developed redesign strongly based on the research conducted in MSc3. Strategies of conservation, intervention and transformation are explored and translated into an architectural and technical design. The design choices are based in an understanding and justified in relation to cultural value. Students individually create a developed design that shows coherence and correctness, and a meaningful translation of an intervention strategy into the spatial, functional, urban, material and technical design. Furthermore, they will position the project within a broader perspective of socio-cultural, historical, philosophical, economic and environmental contexts. In the graduation project the societal and disciplinary position and its relevance in relation to design ethics and intercultural issues are discussed. After reflective exploration and consideration, students present a detailed design project that addresses all-important aspects of architectural design, technology and cultural value.</p>	
Study Goals	<p>Upon completion of this studio, the student is able to:</p> <ul style="list-style-type: none"> - develop a design brief and create a developed redesign that presents spatial, functional, urban, material and technical quality, - position the project and its heritage aspects in a broader perspective of socio-cultural, historical, philosophical, economic and environmental contexts, - apply professional knowledge and design tools related to architecture, building technology and cultural value, - explain and justify design choices in relation to architectural design, technology and cultural values, - argue and reflect on the design product and process in relation to current architectural discourse, - demonstrate and employ moral sensibility, analysis, creativity, judgement, decision-making and argumentation skills regarding architectural ethics and his/her future role as architect, - explain and reflect on meaning and design development with relevant presentational means in a public presentation - communicate complex design ideas at an advanced level through verbal presentations, visual and written media. <p>See the evaluation form 'Graduation Criteria Architecture P3', the assessment criteria of the 'Graduation Criteria Architecture P4/P5' of the Architecture Master track, and the 'Exit Qualifications' of the Master Architecture, Urbanism and Building Sciences.</p>	
Education Method	Students, supervised by mentors, work individually and within the organisational structure of the graduation studios of Heritage & Architecture.	
Assessment	Viva voce examination, with visual presentation and supporting material, including drawings and models, as pertaining to the official requirements of the Faculty of Architecture, Urbanism and Building Sciences.	
Period of Education	Semester	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

Interiors Buildings Cities

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

MSc 1 AI

AR1A060	Delft Lectures on Architectural Design	3
Responsible Instructor	Dr.ir. S. Komossa	
Course Coordinator	Dr.ir. E.H. Gramsbergen	
Instructor	Dr.ir. E.H. Gramsbergen	
Instructor	Dr.ir. P.J. Teerds	
Instructor	Ir. L.G.K. Spoormans	
Instructor	Dr.ir. B.M. Jurgenhake	
Instructor	Ir. M.J. Smit	
Contact Hours / Week x/x/x/x	2 hours per week	
Education Period	1 3	
Start Education	1 3	
Exam Period	1 2 3 4	
Course Language	English	
Course Contents	<p>The Delft Lectures on Architecture Design highlights current issues of the architecture discipline against the background of the larger societal conditions that have an inevitable impact on the practice of design. Contemporary positions in architecture practice and theory will be discussed. Full professors, associate professors and researchers of the Delft Faculty of Architecture will address key contemporary topics, and investigate historical models and theoretical arguments while discussing the latest architecture projects as well as seminal cases.</p>	
Study Goals	<p>Key questions concern: - where do architects stand and what can they do? - which positions and practices are developed by architects? - what strategies and approaches were and are relevant?</p> <p>After completion of the course: Building on the architectural design courses of the Bachelor, the student has gained knowledge of relevant issues of the discipline of architectural design, practice and its body of knowledge, including the main theoretical concepts and models. The student is able to reflect critically on ethical positions taken by lecturers and expressed by their practises.</p>	
Education Method	<p>The student: - Has appropriate knowledge of the main issues of the discipline of architectural design, practice and its body of knowledge, including the main theoretical concepts and models. - Is aware of the larger historical development of the discipline of architectural design in relation to the main theoretical concepts and models deployed of architecture, art and technology, their application in specific cases as presented in the lecture series addressing current issues of architectural practice and society. - Is able to interpret the architectural design production, both historically and current, in terms of the concepts and models of design as discussed in the lecture series; this includes the larger context of the manifold relations between architecture, the city and society and the relations between design concepts, building production and materialization.</p>	
Assessment	<p>Double lectures (2 x 45 minutes) by full professors, associate professors and researchers of the department of Architecture and other faculty members. Lectures are concentrated in the first half of the semester, during 7 weeks. Generally, the double lectures start with introducing the 'issue', after which the 'architectural positions' are discussed. The lecture coordinators are present to introduce the speakers and the topic, and to moderate questions from the students.</p>	
Special Information	<p>The format of the examination is a digital exam with a duration of three hours, which means the examination is taken place in a specifically equipped examination hall on the campus. The maximum marking period is 10 work days.</p>	
Period of Education	The maximum marking period is 10 work days.	
Course evaluation	Quarter	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1A065	Delft Lectures on Architectural History	3
Responsible Instructor	Prof.dr.ing. C.M. Hein	
Responsible Instructor	Dr. H.D. van Bergeijk	
Course Coordinator	Dr. H.D. van Bergeijk	
Contact Hours / Week x/x/x/x	X/X/X/X	
Education Period	2	
	4	
Start Education	2	
	4	
Exam Period	2	
	3	
	4	
	5	
Course Language	English	
Course Contents	<p>This course provides a deepening of a particular part of the knowledge that the student has gained in the earlier stages of his curriculum. It consists of a lecture series of Capita Selecta dealing with the modern architectural production from 1850 till about 1940. This year the course will focus especially on the birth of modernism in the periode from the beginning of World War I till the collapse of the stock market in 1929. De Stijl-artists and the Bauhaus will be the core of the course but also figures like Dudok, Stam and others will receive due attention. We will try to explore how the abolition of history led to a new concept of society and the underlying concepts of civitas. A belief in the machine produced also a new ethics that will have an influence on the development of society in the 20th and 21st century.</p>	
Study Goals	<p>The student</p> <ul style="list-style-type: none"> - has acquired a sufficient framework to place and value different contributions to the history of the discipline and society in general. - has gained insights on a specific theme and has deepened his knowledge - has an understanding of some of the tools of the architect from a historical point of view. - knows how to apply certain terms and is critical to their meaning - can relate to the work of architectural historians - is capable of giving a motivated and well-argued answer to the questions - has an idea of the importance of the ethical position of the architect and critic in relation to certain important issues 	
Education Method	Lectures	
	Readings	
Literature and Study Materials	All students should read:	
	- Michael White, De Stijl and Dutch Modernism (Manchester University Press).	
	Further readings will, if necessary, be provided through Blackboard.	
Assessment	Exam with essay questions in which the students exposes his knowledge. The student can choose from the questions. The answer to an essay question should be given in about 500 words. The knowledge that the students shows should be related to his readings and the ideas that he has formed during the course. Students are expected to challenge themselves.	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1A075	Delft Seminars on Building Technology	6
Responsible Instructor	Prof.ir. M.F. Asselbergs	
Responsible Instructor	Ir. B. Gremmen	
Course Coordinator	Ir. B. Gremmen	
Contact Hours / Week x/x/x/x	40 hours per quarter	
Education Period	1 3	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	We expect that you followed the bachelor in Delft or a similar education elsewhere in the world. You have gained knowledge and practices in the next topics:	
	<ol style="list-style-type: none"> 1. constructional and structural detailing (1:20/5/2/1) 2. Structures/constructions in steel, wood and concrete 3. Climate issues, ventilation, heating and cooling 	
	Literature list for International students, master Architecture We take the content of these books as read before participating.	
	<p>Components and connections Author: Meijs, Maarten Contributor: Knaack, Ulrich Publisher: Birkhäuser Publish date: 2009 Document type: book ISBN: 978-3-7643-8669-6 Subtitle: principles of construction Classification: UJA / Building structures: general Chapters all</p>	
	<p>Building construction illustrated Author Ching, Francis D.K Publisher Wiley Publish date 2008 Document type book ISBN 978-0-470-08781-7 Edition 4th ed. Chapters all</p>	
	<p>Structures Author Schodek, Daniel L. Publisher Pearson/Prentice Hall Publish date 2008 Document type book ISBN 0-13-178939-2 Edition 6th ed. Chapters 1,2,3,4,6,7,9,10,13,14,15,16,</p>	
	<p>Climate and Architecture Author Dahl, Torben Publisher Routledge Publish date 2010 Document type book ISBN 978-0-415-56308-6 Edition 1th ed. Chapters all</p>	
	<p>Building Physics Author Linden, A.C. van der Publisher Thiemeleuhenhoff Publish date 2013 Document type book ISBN 978-9006-95155-4 Edition 1th ed Chapters all</p>	
Course Contents	In this course you will make a new technical design for a selected fragment of a case study building or a fragment. In two posters (A0) you will present your new design in technical drawings 1:20 and 1:5/1. Next you will explain the structural design, climate design and facade design in informative diagrams, illustrated with photographs and sketches.	
Study Goals	The student:	
	<ol style="list-style-type: none"> 1. Is able to use research skills in technological design issues and is able to formulate an accurate guiding theme or position, that guides the design process 2. Is able to recognize technical design problems and is able to select -in a substantiate manner- the best solution from a series of (self) formulated possible design alternatives 3. Is able to interpret and integrate the aspects of structure design, construction (facade) design and climate design in a design of a building 4. Is able to provide innovative design solutions especially with regard to the use of energy and providing comfort in building design 5. Is capable of drawing and presenting architectural and technical aspects of a design in a coherent and clear manner 	
Education Method	work groups (seminars)	
Books	<ul style="list-style-type: none"> - Millais, M., 'Building structures, a conceptual approach', London, 1999 - Jones, B., Peter, 'Modern Architecture Through Case Studies', Oxford, 2002 - Daniels, 'Advanced Building Systems, a technical guide for architects and engineers', Basel, 2003 - Frampton, 'Studies in Tectonic Cultures', The MIT Press, 1995 - Ronner, Kolliker, Rysler, 'Baustuktur', Basel, 1995 - Schittich, C., 'In detail: building skins: concepts, layers, materials Basel', Basel, 2001 - Watts, A., 'Modern Construction Handbook', Wien, 2001 - Watts, A., 'Modern Construction Facades', Wien, 2005 	

<p>Assessment</p>	<p>- Bachman, L.R., 'Integrated Buildings', Hoboken Wiley, 2003 - Cook, P., Primer, 'Emancipation of Structure', London, 1996 - Deplazes, D., 'Architektur Konstruieren', Basel, 2005 - Addis, B., 'Building, 3000 years of Design Engineering and Construction', London, 2007</p> <p>The examination will take place in the form of a poster (pin-up) presentation in the studio spaces. Examination will only take place during the final presentations of the course. The date of the final presentation will be announced in the seminar handout. You will receive a mark between 1 and 10 with the following meaning:</p> <p>10 Excellent 9 Very good 8 Good 7 Quite sufficient work 6 Sufficient</p> <p>5,5 Almost sufficient, can be corrected with a repair task without tutoring. Only minor deficiencies can be fixed as a repair task, decided by the tutor. Must be finished within two weeks after the final presentation. Second repair is not possible. Your work will be marked with an V.If the repair does not higher the grade up to V you will have to redo the course.</p> <p>in the case of a delayed evaluation (by request of the study counsellar), the figure will be a maximum of 6.</p> <p>5 and lower, Unsufficient, you have to redo the course next semester</p> <p>NV in case you did not finish the course</p>
<p>Special Information</p> <p>Period of Education</p> <p>Concept Schedule</p>	<p>The maximum marking period is 10 work days.</p> <p>Quarter</p> <p>Q1: In the weeks 1.1 up to and including week 1.6 of the 1st quarter you need to reserve in time Q3: In the weeks 3.1 up to and including week 3.5 of the 3rd quarter you need to reserve in time</p> <p>Tutoring: 40 hours Independent study: 128 hours</p> <p>Seminars will take place on Tuesdays and Fridays, mornings or afternoon. Final presentation will take place on the Friday of the week 1.6 (Q1) and 3.5 (Q3)</p>
<p>Leerstoel</p> <p>Course evaluation</p>	<p>Architectural Engineering</p> <p>For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/</p>

AR1AI010	Interiors Buildings Cities MSc 1 Design Project	12
Responsible Instructor	Prof. D.J. Rosbottom	
Course Coordinator	Ir. S. Pietsch	
Instructor	Ir. M.E. Stuhlmacher	
Instructor	Ir. L.M.M. de Wit	
Instructor	M. Pimlott	
Instructor	D.H.G. Somers	
Instructor	Ir. S. Pietsch	
Instructor	Ir. J.S. Zeinstra	
Instructor	Ir. drs. E.P.N. Schreurs	
Instructor	S.S. Mandias	
Instructor	Prof. D.J. Rosbottom	
Contact Hours / Week x/x/x/x	4 hours per week	
Education Period	1	
Start Education	2	
Exam Period	3	
Course Language	English	
Summary	The Chair of Interiors Buildings Cities is concerned with making buildings, in places, for people. It conceives of the city, at each scale, as a work of architecture and, hence, the responsibility of the architect. This developing discussion of the chair is contextualised through an annual theme.	
Course Contents	The MSc1 course, The House in the City, considers detailed material and spatial programmes for proto-typical city buildings with the intention of nurturing architectural sensibilities in students that are attuned to context, users, relations, appearances, spaces and interiors, materiality, and construction.	
Study Goals	<p>MSc 1 is structured as a series of parallel studios, run by a dynamic mix of practitioners and academics and collectively concerned with interpretations of a common theme, the House in the City. Understood ambiguously, as in the German Haus, the concerns of the course are not the representative monuments of culture, nor the private houses of individuals. Instead, projects explore those buildings that stand between, housing our collective urban life and oscillating, in our consciousness, between foreground and background. Carefully wrought, spatially rich, generous and adaptable, such buildings have the capacity to evolve over time and to engage in a territory that might encompass both extended domestic and intimate public life. As discrete elements, subservient to a larger whole, they play small but significant roles in structuring urban fabric and defining urban space, simultaneously taking pleasure in the heterogeneity of the contemporary city and bringing it into order.</p> <p>Through individual projects, each studio addresses how such city houses might be made, experienced and inhabited, in time and space and in response to the particularities of place. Through careful drawing and iterative making, their individual characters emerge in a welcoming interior, through a moment of figuration or in the refinement of a façade.</p> <p>The contents of the individual studios will be published at the beginning of the semester. Students are asked to indicate their preference for one of them. Usually the studios include a 2-3-day excursion to a location relevant to the project. The corresponding information will also be communicated at the start of the semester.</p> <p>The MSc1 Design Project (Ar1Ai010) is conceived in conjunction with the Fundamentals course (AR1Ai040). Students are required to enrol to both courses.</p> <p>Upon completion of the Master 1, 2, 3 & 4 studio trajectory the student:</p> <ul style="list-style-type: none"> - Has developed the skills in architectural design satisfying both aesthetic and technical / functional requirements. During the trajectory the complexity of the architectural design increases leading to a level fit for architectural practice and a training period for professional accreditation as architect. - During this trajectory skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology and human sciences. - Additionally, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and society's needs, including environmental aspects. - During Master 1, 2, 3 & 4 process skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing. - Together with the training with regard to aspects of building technology, during the Master 1, 2, 3 & 4 process skills are acquired to incorporate an understanding of the design process with regard to structural design, materialisation of buildings and interiors, comfort and climate design. <p>A specific description of the aims of the studios will be published in the Studio Manual, to be distributed at the beginning of the course.</p>	
Education Method	The design studio features individual and group tutorials, and study specific to the design project as well as several dedicated thematic exercises, internal lectures and seminars that pertain to and inform the subject.	
Literature and Study Materials	A characteristic working method of the Chair is the building of physical models of varying scales in which ideas about the design project are tested and materialized.	
Assessment	To be announced upon beginning of the course	
Assessment	<p>The design studio concerns the development of an architectural project on all scale levels, from its urban setting to its materiality and elaboration of its details. The project will be assessed during an intermediate, pre-final and final presentation on its:</p> <ul style="list-style-type: none"> - the position that is formulated with regard to the brief and its context - the appropriateness of the intervention with respect to the assignment - aesthetic and technical / functional qualities - the elaboration throughout the respective scales - the integration of the disciplines included - the quality of the presentation, the products and the argument. - the consistency and coherence and development of the students work during his / her process <p>The products to be assessed include the design proposal represented through drawings, models and text; the project journal and</p>	

	the portfolio.
	The final grade consists of partial grade of 80% for Architecture and 20% for Building Technology. Both grades need to be sufficient for the student to pass.
Special Information	The maximum marking period is 10 work days.
Period of Education	Semester
Leerstoel	Interiors Buildings Cities
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/

AR1AI040	Interiors Buildings Cities Fundamentals	6
Responsible Instructor	M. Pimlott	
Course Coordinator	Ir. S. Pietsch	
Instructor	M. Pimlott	
Instructor	Ir. S. Pietsch	
Instructor	Ir. J.S. Zeinstra	
Instructor	S.S. Mandias	
Contact Hours / Week x/x/x/x	4 hours per week	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	2 4 5	
Course Language	English	
Summary	The Fundamentals course introduces students to the fundamental ideas underlying the discourse, research, and teaching within the Chair of Interiors Buildings Cities and make them available for the students as tools in their own design process. The course is taught separately from the Design Project but has contact with the Project through moments of discussion and critique.	
Course Contents	<p>The courses purpose is to nurture observation and deep inquiry of interiors, buildings and cities as cultural artefacts; and heightens orders of attention through which meanings become available for the imagination, for transformation, for use, and for re-presentation.</p> <p>The research tradition of the Chair is centred on the interpretation of the architectural object and its culturally embedded narratives. Central themes of research are introduced through a series of lectures and discussions, and the study of architectural precedents relevant to the Design Project.</p> <p>The trajectory of the lectures in the Fundamentals course passes from a discursive introduction to the years theme, to discussions that may be thought of as foundations of the Chairs approach to making work. The series will describe the context and the many locations of architecture; the matter of attention and acts of looking that are essential for approaching the world, the other and the architectural artefact; the complexities attached to the experience of the architectural artefact, and those meanings produced by atmosphere, materiality and material culture, language, allusion and representation.</p> <p>The objective of the course is to develop an understanding of the context of both the Chair and specific studio as well as an individual research position that can inform the design project. The course is proposed as a vehicle for students reflections on the situation, place, means and expressions of architecture, and on their own ongoing Design Projects.</p>	
Study Goals	<p>The Fundamentals course (AR1Ai040) is conceived in conjunction with the MSc1 Design Project (AR1Ai010). Students are required to enrol for both courses.</p> <p>Upon completion of the Fundamentals the students should have developed</p> <ul style="list-style-type: none"> - the ability to access an academic discourse, identify positions and claims and discuss them from various points of view. The capacity to derive aspects from that discourse to be implemented in exemplary cases and make them practical for their own research. - the ability to analyse an architectural object its historical, social and cultural context through photographs, drawings and literature. Being able to analyse the ideas that informed the project through observation, reflection and interpretation. - the capacity to develop and formulate an independent position. - the ability to set up a clearly assembled, well-argued and well-formulated narrative and present it through adequate verbal and in visual means; and to elaborate upon and defend ideas through discussion 	
Education Method	Lectures and seminars, individual tutorials	
Literature and Study Materials	To be announced upon beginning of the course	
Assessment	The grade for the Fundamentals course is formed by the assessment of the precedent study and a written reflection on the process of the Design Project. Students will be assessed on their analytical skills, their capacity to develop an argued academic position, as well as the quality and coherence of the spoken, written and the visual material. Criteria for the grade are rigour in argumentation and preparation of material, and originality of the final products.	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

Starting Course MSc1

ARX071	Workshops Faculty of Architecture and the Built Environment	1
Responsible Instructor	Dr.ir. R. Cavallo	
Contact Hours / Week x/x/x/x	X / 0 / 0 / 0	
Education Period	1	
Start Education	1	
Exam Period	none	
Course Language	English	
Course Contents	<p>All new MSc students of the Faculty of Architecture and the Built Environment will start the academic year 2018-2019 with a 3-day workshop programme on 30 & 31 August and 3 September 2018.</p> <p>The programme is developed in cooperation with TPM colleagues of the section "Ethics & Philosophy of Technology". With a mix of lectures, workshops and sessions guided by teachers of the faculty, you will be introduced to (design) ethics, scientific integrity and intercultural communication.</p> <p>With these workshops you will make a first start to cover the ethics engineering learning goals of the MSc programmes. Further, we wish to enhance the interaction between all new students, both Dutch and International, and to introduce you to settings, methods and procedures of the faculty.</p> <p>Participation in the workshops is mandatory for all students starting their MSc 1 programme in September.</p>	
Study Goals	- The student has a basic understanding of moral sensibility, moral analysis skills, moral creativity, moral judgement skills, moral decision-making skills and moral argumentation skills.	
Education Method	Lectures, workshops, role playing game, assignment	
Assessment	Workshops attendance Assessment: V (passed) or NV (failed)	
Special Information	<p>The academic year will start with a three day workshop programme. With a mix of lectures, workshops and sessions guided by teachers of the faculty, you will be introduced to (design) ethics, scientific integrity and intercultural communication. With these workshops you will make a first start to cover the ethics engineering learning goals of the MSc programmes. Further, we wish to enhance the interaction between all new students, both Dutch and International, and to introduce you to settings, methods and procedures of the faculty. The workshops will lay the foundation for your master studies. It is highly recommended for both Dutch and International students to participate in this programme and you will be granted 1 EC after following the whole programme. This EC will be used in your electives list Master 2/3.</p> <p>For more information see website: https://www.tudelft.nl/studenten/faculteiten/bk-studentenportal/onderwijs/master-of-science/workshops-master-students/</p>	
Period of Education	3 days	

Year	2018/2019
Organization	Architecture
Education	Master Architecture, Urbanism & Building Sciences

MSc 2

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

Compulsory

AR2A015	Delft Lectures on Architectural Sustainability	3
Responsible Instructor	Ir. P.G. Teeuw	
Responsible Instructor	Prof.dr.ir. A.A.J.F. van den Dobbelsteen	
Course Coordinator	Ir. P.G. Teeuw	
Contact Hours / Week x/x/x/x	14 hours per quarter	
Education Period	1 3	
Start Education	1 3	
Exam Period	1 3 4	
Course Language	English	
Required for	Compulsory MSc2 course for the variant (track) Architecture of the master Architecture, Urbanism and Building Sciences.	
Course Contents	This lecture series emphasizes the possibilities of architecture itself as a means to promote sustainable development. Architecture as a tool to create a more sustainable world. Rather than focus on added sustainable technologies, this course searches for architects possibilities to design good sustainable architecture and a smart organisation. A 'sustainability' driven design attitude should become a second nature for students.	
Study Goals	The student: - Has an overall understanding of the factors associated with: sustainable development related to architectural design. - Has an understanding of the architects responsibilities towards sustainable design. - Is able to position him or herself in matters concerning the relation between sustainable development in general and architecture in particular. - Is capable to formulate possible architectural solutions for building-related environmental issues and has an understanding of their social, ethical and economic dimensions.	
Education Method	Lectures and debate	
Literature and Study Materials	- Reader Delft Lectures on Architectural Sustainability; edition course year 2018-2019, September 2018 (Brightspace) - Jón Kristinsson, Integrated Sustainable Design, Delft/Deventer 2012 - Required reading for the exam: Chapters 2, 3, 4, 5, 8, 9, 10 (Bouwshop) - Anke van Hal, The merger of interests, Breukelen 2009 - Required reading for the exam: up to and including page 17 (Download from the internet) - Anke van Hal, The merger of interests 2.0, Breukelen 2014 - Required reading for the exam: Chapter II and III (Download from the internet) - Some parts of the website http://www.urbangreenbluegrids.com as links included in the reader; edition course year 20182019, September 2018 (Brightspace) - Some articles of the book Circulariteit op weg naar 2050? red. Peter Luscuere 2018 (download from the internet)' pages indicated in the reader; edition course year 20182019, September 2018 (Brightspace)	
Assessment	Written exam	
Special Information	The maximum marking period is 15 work days.	
Period of Education	Quarter	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

Compulsory Choice

AR2A010	Architectural History Thesis	6
Responsible Instructor	Prof.dr.ing. C.M. Hein	
Course Coordinator	Prof.dr.ing. C.M. Hein	
Instructor	Drs. C.A. van Wijk	
Instructor	Dr.mr. E. Korthals Altes	
Instructor	Dr. H.D. van Bergeijk	
Instructor	Dr. M.T.A. van Thoor	
Instructor	Dr. R.J. Rutte	
Contact Hours / Week x/x/x/x	10 hours per quarter	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	Research writing:	
	<p>The student:</p> <ul style="list-style-type: none"> - Demonstrates a general historical understanding of the architecture profession and the role of the architect in society. - Can apply broad knowledge of the history and theory of architecture and related art forms and the humanities, as well as of the social and cultural developments relevant to architectural design. - Has developed appropriate academic writing skills. For TU Delft BSc graduates, a finished AC3 paper should have provided them with skills in planning and developing a research project, critical and responsible use of sources, and logical argumentation. These skills will be applied and expanded during this course. <p>Language skills:</p> <ul style="list-style-type: none"> - The student has appropriate English language skills. <p>If in doubt, the student should consult the OpenSourceware made available through the following links:</p> <p>https://learn.saylor.org/course/view.php?id=42</p> <p>https://learn.saylor.org/course/view.php?id=43</p> <p>These links lead to the English courses offered for free to all by the online Saylor Academy.</p> <p>Please Note: Any issues regarding research skills or language capacities will have to be addressed before the start of this course, and will require serious commitment by the student. The language courses are extensive and the student will not be able to combine them with the normal thesis workload during the semester.</p>	
Course Contents	<p>The history thesis (geschiedeniscriptie) is a required independent research project in the Master 2. It may deal with architecture, urbanism, the visual arts, design and photography, film or literature. It provides students the opportunity to hone their research skills on a historical topic. If the focus is on architecture, the research can also be of a typological kind, for example on a particular type of building, preferably not through the centuries but concentrating on a particular period or aspect. If urbanism is the subject matter, the themes may vary from the regional to the neighborhood scale, design and decision making processes, the role of politics, theories (ranging from functionalism to morphological approaches, from programmatic aspects to ideas about the creative classes and gentrification). It may also be a topographical / territorial topic, where appropriate in combination with other aspects. Finally it can regard also the investigation of an abstract topic: rhythm, scale, theory of proportions, ornamentation, eclecticism and monumentality, etc. in which an historical point of view is dominant.</p>	
	<p>Using mixed methods from archival research and oral history to close reading of visual and textual analysis students critically examine a topic of their own choosing, producing a substantial research paper based on a clear historical perspective. This analytical and conceptual experience forms an important complement to the design&#8208;based education of the master in architecture. Writing a history thesis offers students a unique opportunity to pursue a research on a specific topic and requires students to work independently. Building on historical knowledge and research skills gained in introductory and advanced courses, students focus on primary materials and pursue an original question. They develop a complex argument and grapple with multiple data sets and interpretations. Collective and individual meetings with tutors provide a framework for the production of an original, well&#8208;written essay of about 9000 words. Students need to be familiar with library catalogues and search engines. The essays are required to demonstrate superior and consistent understanding of scientific writing (i.e. footnotes, bibliography, front and back matter). topics have to be approved by the supervisor who has to be a member of the Chair History of Architecture and Urban Planning. The topic has to be discussed with the supervisor prior to commencing. Sometimes teachers will offer a workshop.(See Blackboard).</p>	
Study Goals	<p>Learning objectives</p> <p>After completion of the course the student:</p> <ul style="list-style-type: none"> - Exhibits in depth knowledge regarding a specific field of study within architecture, urbanism, art, and or media. - Is able to plan and develop a scientific research project. - Is able to develop a critical and logical argumentation from a scientific research question based on primary sources. - Is able to evaluate, interpret and make proper reference to available sources. - Is able to build on existing knowledge and develop new knowledge. 	
Education Method	<p>Thesis supervision: 8 hours Independent study: 158 hours (a day in the week has been reserved for working on the thesis)</p>	
Literature and Study Materials	Blackboard	
Assessment	Thesis (For more information - length, references, use of literature and other sources - see blackboard).	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Quarter 1 and quarter 3	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR2AT030	Architecture Theory Thesis	6
Responsible Instructor	Dr.ir. H. Sohn	
Course Coordinator	Dr.ir. H. Sohn	
Instructor	Dr. S.A. Read	
Instructor	Dr.ir. A. Radman	
Instructor	Dr.ir. H. Sohn	
Instructor	Dr.ir. S. Kousoulas	
Contact Hours / Week	14 hours per quarter	
x/x/x/x		
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Required for	As per MSc2 Architecture program requirements.	
Expected prior knowledge	Students are expected to have developed a specific interest in Architecture Theory, which includes previous reading and some research in this field. Previous writing on theoretically driven topics is highly recommended.	
Summary	The Architecture Theory Thesis course offers students the possibility to explore and engage the rich conceptual and theoretical dimensions of architecture through the development of theoretical arguments and intensive research on a topic of their own choice. A free thematic allows students to conduct individual, independent research on issues and concerns that matter to them, thus offering them the opportunity of deepening their knowledge and expertise on topics which are close to their interests and passions. The focus in all cases, however, will be placed on developing the theoretical aspects of these topics.	
Course Contents	The Architecture Theory Thesis course is designed to guide participating students through the different stages of academic research and writing, aiding them in the identification of the theoretical dimensions and frameworks of their selected research topic and 'problématique', offering them relevant and timely feedback and support on their progress throughout the term. The tutors involved in this course assist students in the formulation of sound problem statements, research questions and argumentation lines towards the production of qualitative theoretical Masters' Theses.	
Study Goals	Although students are required to bring their own research passions and topics of interest to the course, we encourage students to orient these topics within two general domains or areas of specialization: 1. Architecture and political economy: Dealing primarily with research on the systemic and scalar complexities of (power) relations, forces, flows and networks, focusing primarily on their impact on -and relationship to- the (built) environment. Further angles include research on geo-politics, bio-politics and contemporary political-economy through critical and speculative investigations on the spatial, social and material transformations and consequences that these unleash across multiple scales, levels and domains. Possible themes, topics and approaches are: critical/speculative approaches to contemporary urbanisation; territorial & material flows: refuge & migration; metabolic/planetary urbanism; socio-material and spatial practices: resistance, subversion, transgression, social movements; etc. Key thinkers: David Harvey, Neil Smith, Peter Marcuse, Neil Brenner, Henri Lefebvre, Erik Swyngedouw, Andy Merrifield, Matthew Gandy, Manuel Castells, Saskia Sassen, Michel Foucault, Slavoj Zizek, Loic Wacquant, among many others. 2. Architecture and libidinal economy: Research topics dealing primarily with issues related to matter and image, and the means and techniques of production in architecture. Mainly focused on pluralist approaches and speculative theory methodologies, and philosophical inquiries. Themes include the social effects and human affects of technological developments on the mode and means of conceiving, developing and producing cultural objects, artifacts and/or architecture. In other words, research on the material and immaterial processes and productions of things and images and their relation to experience, perception and cognition. Key words or concepts: technology, media, materialism/new-materialism, radical empiricism, speculative realism, ecological thinking, affordance, biopower/noopower, affect theory, complexity theory, geometry, space, time, memory, perception & experience of space. Key thinkers: Gilles Deleuze, Felix Guattari, James J. Gibson, Brian Massumi, Manuel DeLanda, Katherine Hayles, Henri Bergson, Martin Heidegger, Bruno Latour, Katherine Malabou, Jane Bennett, Karad Barad, Rosi Braidotti, Stanford Kwinter, among many others.	
Education Method	Upon completion of this theory course the participants will: have a solid base of knowledge on recent literature in the humanities and the social sciences and their relation to architecture practice and theorization. the appropriate knowledge of the theory of architecture and related art forms as well as of the social and cultural streams of relevance for architectural design. have developed in-depth knowledge regarding the specific field of study relating to architecture, urbanism, art, and/or media. have acquired knowledge and practice on academic research and writing skills, and will be able to apply these in theoretical argumentation and the formation of discourse. have developed a consistent and cohesive research methodology by distinguishing between a problem statement, an argumentation paper and fully developed research paper will have acquired understanding of the societal, cultural, technological and ethical dimensions and implications of conducting research on architecture	
Education Method	The Architecture Theory Thesis course is based primarily on independent self-study. It nevertheless offers students sufficient and qualitative contact-time at the early stages through the Introduction Lecture and two group meetings in which students are encouraged to introduce and discuss their topics and theoretical frameworks with their peers and tutors. The exchange of peer-reviews and feedback at this stage offers students a solid point of departure. After the group meetings in the beginning of each term, students develop their work independently. The progress is checked and discussed at regular intervals, guidance is offered through written feedback from the tutors, followed by individual consultation moments, when students can discuss their work with tutors in person. Since this course is based on a self-study format, feedback and guidance are offered on the progress made by the students, who take full ownership of their work. Tutors assist, encourage and advise students in their research and writing, and accompany them throughout the development of their Theses within one semester. Preparatory Phase: Self-study	

Formulation of Abstract

Introductory Phase:

Contact-time

Introduction Lecture: course introduction

Group meetings (2): tutor-led seminar-type discussions and peer-reviews

Problem Statement & Research Questions

Preliminary Reading List

Research-Writing Phase:

Self-study periods

First & Second Drafts

Feedback & Consultations

Final Thesis

For more information please contact the course coordinator.

Course Relations

This course is a required choice-course for MSc1/2 curriculum that awards 6 ECTS upon successful completion.

Accreditation is required for P2 registration, hence we urge students to complete this course prior to MSc3 enrolment!

This course is highly compatible with the Architecture Theory Design Studio Agential Materialisms (AR2AT020) offered only in Spring terms Q4. Students wishing to follow both courses in one term are asked to enrol in the assigned period Q1/3 and Q4.

For questions please contact the course coordinator.

Literature and Study Materials

Part of the objectives of this course is for students to learn how to build a detailed and relevant reading list and research bibliography based on their individual thesis topic. Hence, students will largely define their consulted first and secondary sources.

Tutors will recommend relevant readings and sources during the feedback phases of the course, and upon request by students.

Prerequisites

As per MSc2 Architecture program requirements.

Assessment

This course will be assessed via a series of deliverable assignments:

Problem Statement

First and Second Progress Drafts

Final Thesis

For evaluation criteria and rubrics please consult the course information on Brightspace or contact the course coordinator.

Enrolment / Application

This course has limited enrolment and special requirements!

All interested students are requested to submit a tentative thematic research proposal (motivational abstract) to the Architecture Theory chair in order to determine the theoretical viability of the proposal in advance.

Research proposals should be uploaded on Brightspace and sent via email to the AT chair office, by the announced deadline. Students will receive an email after registration to the course. The abstract deadline will always be prior to the beginning of the course.

A concept form for the tentative thematic research proposal and further information are available upon request.

Send us an email to: AT-MS-C-BK@tudelft.nl

Note: The submission of a proposal does not guarantee acceptance into this course. Proposals that are not theoretical or that lean on clearly historical methods, will not be selected, and the students will be informed prior to the beginning of the course.

Note: Due to the seminar structure of this course students must be able to attend the introductory information lecture, and the group meetings held in the first quarter of the semester.

Students with course scheduling conflicts should not sign up for this course.

This course is not open for students following a study abroad semester.

Special Information

The maximum marking period is 10 working days from the final deadline. Marks will be registered in advance of the following academic term.

This course is equivalent to the History Scriptie. It is mandatory and awards 6 ECTS upon completion.

This course has limited enrolment, and is open to students who submit a tentative thematic research proposal with clear theoretical scope.

This course requires attendance to lectures, group meetings and consultations. Thus, students with schedule conflicts or study abroad plans are not eligible for this course.

Period of Education

Full semesters (Q1-2 & Q3-4)

Minimum aantal deelnemers 30

Maximum aantal deelnemers 75

Year
Organization
Education

2018/2019
Architecture
Master Architecture, Urbanism & Building Sciences

21 ECTS Electives

Introduction 1

The Master 2 program of Architecture consists of a total of 30 credits, of which 21 credits compulsory and 9 credits free elective.

Compulsory (total of 21 credits):

- History Thesis (AR2A010) or the Theory Thesis (AR2DSD820) of 6 credits
- The Delft Lectures on Architectural Sustainability of 3 credits
- An approved Master 2 Architecture design project (12 credits) (see list in studyguide)

Elective (total of 9 credits):

- free electives as to be found in the studyguide

There are 3 possibilities for doing the Architecture Master 2 design project:

- 1 - the Master 2 Architecture design project can be an Architecture Master 1 design project (that you have not followed yet), that you attend as an Master 2 design project (12 credits)
- 2 - a design project (12 credits) from the 'MSc 2 design project list', either a semester project or a quarter project (quarter 2 or quarter 4)
- 3 - it is also possible to participate in an (international) program of another university. For this please contact 'International Office' and Students Affairs (O&S)

The courses in this section are agreed on by the faculty Director of Education and the Master coordinator of Architecture as Architecture design projects suitable for Master 2.

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

MSc 2 Design Projects

AR0026	MEGA	12
Responsible Instructor	Dr. M. Turrin	
Responsible Instructor	Prof.ir. R. Nijssse	
Course Coordinator	Dr. M. Turrin	
Contact Hours / Week	93 hours per quarter	
x/x/x/x		
Education Period	4	
Start Education	4	
Exam Period	none	
Course Language	English	
Expected prior knowledge	Each student is expected to have knowledge about the disciplines to perform in the course. The level of the knowledge should be at least BSc.	
Summary	<p>MEGA is a collaborative integral multi-disciplinary design of a special big and/or tall building. This could be a multifunctional skyscraper or a multifunctional building with a large span, such as a stadium, a sports facility, a museum, an airport, train station or transport hub.</p> <p>The course targets master students in Architecture, Real Estate & Housing, Building Technology and Civil Engineering; and it is open to non-TU Delft students, conforming with TU Delft regulations. It can be chosen by Building Technology students in MSc2 (choice between EXTREME AR2AE010 and MEGA AR0026).</p> <p>Students work in teams. The design team of 4 to 7 students is responsible for delivering an integrated design as a multidisciplinary team; while each student is responsible for one discipline.</p> <p>Disciplines involved are: architecture, structural design, climate design, façade design, design/construction management and computational design/BIM. Sustainability runs transversally across these disciplines.</p> <p>The design process occurs in a collaborative digital design environment, supporting the workflow across the different disciplines. The collaborative digital design requires an integrated 3D approach with BIM (Building Information Modelling), performance analysis, and file to production processes.</p> <p>The workshop is very realistic and closely matches the design process of large international projects in the competition phase; it is a very good preparation and experience builder for your future career. It is highly appreciated by future employers.</p> <p>The course is supported by external international design/engineering offices. With them, the location of the project will be chosen and the brief of the design assignment will be developed. As examples from recent years, support was given by Arup and UNStudio, by ABT and Neutelings Riedijk Architecten. Examples of past collaborations include also Municipalities and Provinces, such as the City of Rotterdam, Almere and Den Haag, and the Province of Friesland.</p>	
Course Contents	<p>Disciplines:</p> <p>The team is organized on disciplines:</p> <ul style="list-style-type: none"> -Architectural Design -Structural Design -Climate Design and building services -Façade Design -Project and construction management -Computational Design <p>The disciplines are divided amongst the team members; each member is responsible for the contribution and integration of these aspects in the collective design. Students are encouraged to match their role in the team with the specialization they follow in the Master track.</p> <p>Phases:</p> <p>The course is structured in 3 phases:</p> <ul style="list-style-type: none"> -Lectures; excursion; intensive learning -Sketch design of 2-3 options; presentation of options; choice of one option -Preliminary design of the chosen option; final presentation <p>The first phase includes lectures by professors, external experts and architectural/engineering firms. During the excursion, the project site is visited. Intensive sessions allow studying and practicing group dynamics, collaborative work, computational design.</p> <p>The second phase focuses on the design of multiple options. The daily design activities are facilitated by tutors who are expert in the disciplines. Each discipline has a weekly time for individual consults. During a presentation, one design option is chosen for further development.</p> <p>The mid-term presentation is facilitated by external experts. Feedback by them and tutors inform the design and decision-making. Following, the external experts give a (public) lecture.</p> <p>After the mid-term presentation, the design option is detailed with the team, leading to the end presentation. The end presentation is an important event with external experts assessing the designs. The design is summarised in reports about each discipline.</p> <p>Site:</p> <p>The assignment has an actual site where the building is planned. Past examples are in Amsterdam, Rotterdam, London, Brussels, Guangzhou.</p> <p>Objectives:</p> <p>Collaborative design</p> <ul style="list-style-type: none"> -Working together with different disciplines (different goals and backgrounds) -Realistic design environment <p>Sustainable design</p> <ul style="list-style-type: none"> -Definition of sustainability for project -Contribution of all disciplines to holistic sustainable design -Development of low/zero/plus energy design <p>Computational Design</p> <ul style="list-style-type: none"> -Collaborative digital workflow across disciplines / BIM 	

-Parametric design strategies/methods
-Performance analysis with simulation tools
-Feedback loops between numeric assessments and geometric modelling
-Digital interaction between design, engineering, analysis, manufacturing and construction

Architectural Design

-Interaction architecture/masterplan/environmental context
-Development of architectural design concepts
-Integration of structural, façade, climate concepts into architectural design
-Integration of sustainability and construction into architectural design
-Development of preliminary design

Structural Design

-Development of structural concepts
-Development of concept design
-Evaluation of different structural systems in relation to architectural design
-Integration with architecture, façade, climate design
-Dimensioning of structural elements
-Development of preliminary design

Climate design

-Developments of climate and building services concept
-Development of conceptual design
-Evaluation of different climate and building services systems in relation to architectural design
-Integration with architecture, structure, façade
-Dimensioning of HVAC installations
-Development of preliminary design

Façade design

-Development of façade concepts
-Developments of conceptual design
-Evaluation of different façade systems in relation to architectural and climate design
-Integration with architecture, structure, building services

Project and construction management

-Control of objectives, tasks, deliverables
-Facilitation of the group process
-Prediction of income and building costs; optimisation
-Development of site management and logistics
-Development of construction methods/planning

Study Goals

The student is able to design a coherent, significant, elaborated, correct and innovative design - on mainline and on aspects on MSC 2 level.

Specified for this course:

After successful completion of the course, the student will be able to:

- work in an interdisciplinary design process;
- understand and apply discipline-related knowledge in projects for big or tall buildings.
- develop design strategies to achieve high building performances;
- integrate numeric analysis and simulations to address design choices.

Education Method

In this course, the education methods are:

- Lectures by professors and specialists
- Collaborative working sessions with other students
- Exposure to external architectural practice and external experts
- Consults with tutors
- Making presentation and receiving/integrating feedback

Special is the involvement of external practitioners and external experts linking this course to practice.

For this course several multidisciplinary teams of students are formed, which are each responsible for one integral design. Each student has a different role in the design team and is tutored by instructors specialized in her/his discipline. When possible, students take roles according to their specialization during the Master studies.

Apart from focussing on his/her own discipline, the aim for each team-member is to achieve the best integral design paying special attention to collaborative design, sustainable design and computational design.

Feedback is received during the mid-term and final presentation from the external experts and tutors.

Literature and Study Materials

More specific literature is provided at the start of the course. The literature below provides an indication on relevant general content.

Tall Buildings

Kloft, E., Eisele, J., (Ed), (2003) High-Rise Manual, Hardcover

Ng, E. (Ed.). (2010) Designing high-density cities for social and environmental sustainability. London, Earthscan.

Ali MM, Moon K. (2007) Structural developments in tall buildings: currents trends and future prospects. Architectural Science Review 50(3): 205223.

Baker WF, Korista DS, Novak LC. (2008) Engineering the worlds tallest Burj Dubai., In The CTBUH 8th World Congress Tall & Green: Typology for a Sustainable Urban Future, Dubai; 110.

Brown, N. C., & Mueller, C. T. (2016) Design for structural and energy performance of long span buildings using geometric multi-objective optimization. Energy and Buildings, 127, 748-761. Cross, P., Vesey, D., Chan, C.M., (2007) High-Rise Buildings. In Melchers, R.E., Hough, R., (Ed), Modeling complex engineering structures, ASCE.

Stylianou, D., Charitou, R., Hesselgren, L., (2006) Computational Methods on Tall Buildings - The Bishopsgate Tower, Communicating Space(s) In proceedings of eCAADe 2006, 778-785.

Almusharaf, Ayman M.; Mahjoub Elnimeiri (2010) A Performance-Based Design Approach for Early Tall Building Form Development, CAAD - Cities Sustainability, Proceedings of ASCAAD 2010, 39-50.

Kimpian, J., Mason, J., Coenders, J., Jestico, D., Watts, S., (2009) Sustainably Tall: Investment, Energy, Life Cycle., In proceedings of ACADIA 2009: reForm() - Building a Better Tomorrow, 130-143.

The Structural Design of Tall and Special Buildings, International Journal, John Wiley & Sons, Ltd
Moon K, (2008) Sustainable structural engineering strategies for tall buildings. In: The Structural Design of Tall and Special Buildings, Special Issue: CTBUH 2nd Annual Special Edition: Tall Sustainability 17(5): 895914.

Taranath, BS, (2011) Structural Analysis and Design of Tall Buildings: Steel and Composite Construction. Taylor & Francis.

Taranath, BS, (1988) Structural Analysis and Design of Tall Buildings. McGraw-Hill, New York.

Schueller, W., (1986) High-Rise Building Structures (2nd edn.) Robert E. Krieger Publication Company, USA.

Big buildings

Barnes, M., Dickson, M., (Ed.), Widespan Roof Structures, Thomas Telford, London, 2000

Hough, R., Carfrae, T., *Lightweight Long-Span Roofs*. In Melchers, R.E., Hough, R., (Ed), *Modeling complex engineering structures*, ASCE Publications, 2007

Imbert F., KathrynStutts Frost, Al Fisher, Andrew Witt, Vincent Tourre, and Benjamin Koren, (2012), *Concurrent geometric, structural and environmental design: Louvre abu dhabi*. In *Advances in Architectural Geometry*, 7790.

Kawaguchi, M., (1991) *Design problems of long span spatial structures*. *Eng. Struct.* 13, 144163.

Majowiecki, M., (2005) *Structural architecture for large roofs: concepts and realizations*. *Bautechnik*, 82(3): 147156.

Majowiecki, M. (1990) *Observations on theoretical and experimental investigations on lightweight wide span coverings*, International Association for Wind Engineering, ANIV.

Hladik, Pavel; Clive J Lewis (2010) *Singapore National Stadium Roof*, *International Journal of Architectural Computing* 8(3): 257-278

Shepherd, P., & Hudson, R. (2007) *Parametric definition of Landowne road stadium*. in: *International association of shell and spatial structures*, Venice, Italy, 2007,CD-ROM.

Hudson, R. (2008) *Frameworks for practical parametric design in architecture*. In: Pottman, H., Hofer, M. & Kilian,A. (eds), *Advances in architectural geometry*. Vienna, Austria,17-20.

Sanchez-Alvarez J, (2005) *Materializing geometry: the free-form reticulated roof structures for the new Milan Fair*. In: *Proceedings of AEC2005 Symposium*, Rotterdam, NL.

Assessment

Presentations and Reports

Assessment is twofold:

- Group assessment for integral group design based on presentations
- Individual assessment for discipline report

The students mark is a combination of the group assessment and individual assessment.

Special Information

The maximum marking period is 15 work days.

Remarks

The course is in English - spoken and written.

Period of Education

Quarter

AR0037	Studio Making	12
Responsible Instructor	Ir. H.A. van Bennekom	
Responsible Instructor	Ir. S.T. Bakker	
Course Coordinator	Ir. H.A. van Bennekom	
Education Period	3 4	
Start Education	3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	completed MSc1	
Course Contents	<p>"Studio Making" is a design studio that offers realistic design challenges, with real external partners, embedded in a series of interesting lectures and site visits. The topics and assignments will be mainly focussed on designing new ideas (based on solid research on the local needs and context) to increase and support circular processes in which demolition waste becomes an ingredient in new concrete. By doing this, the new results will therefor probably posses exiting, unexpected, new qualities and possibilities.</p> <p>TU Delft/Complex Projects is participating in an international project team of researchers, designers and builders that are seeking new applications with re-used raw materials (demolished concrete, brick and tiles). The TU Delft/Complex Projects is especially asked to participate in this international project because of its educational, research and student design qualities. "Studio Making" will be dedicated to designing new applications with recycled concrete and other raw materials, for real projects through western Europe. The sites will be visited during the course, and our designs will be discussed and evaluated with local parties and stakeholders in order to be realized.</p> <p>The Design "Studio Making" builds on the successful approach and contents of the 3ects course 'Making', in which students explore new design possibilities through hands-on experimenting and modeling with concrete, supported by lectures, site visits and design consulting.</p>	
Course Contents Continuation	<p>About 50% of primary raw materials in the EU are used in the building sector. At the same time, this building sector is also responsible for about 35% of all wastes. Within the construction and demolition wastes, components like concrete, bricks, tiles and ceramics have very high potential to be applied as recycled aggregates and sands in new types of concrete etc. However, until now, recycled materials are mostly down-cycled to be used as filling materials in infrastructure projects. Although the recycling quota in North-West Europe is more than 70%, but less than 4% is re-used for the original purpose: concrete production. To support recycles and further development of sustainable improvements, this studio will design new applications of concrete in which recycled aggregates define new qualities and possibilities</p>	
Study Goals	<p>the student:</p> <ul style="list-style-type: none"> - Has developed further skills in architectural design satisfying both aesthetic and technical / functional requirements. - During this trajectory skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology, social and human sciences. - Additionally, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and societys needs, including environmental and waste aspects. - During Master 1, 2, 3 & 4 skills are acquired by cumulation to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing. - skills are acquired to incorporate an understanding of the design process with regard to structural design, materialisation of buildings, comfort and climate control. 	
Education Method	design, tests, presentations, site visit, visiting critics	
Assessment	design and research book	
Special Information	The maximum marking period is 10 work days.	
Elective	Yes	
Tags	Challenging Design Drawing Energy & Industry Projects Prototyping Sustainability	
Period of Education	week 3.8 kick off, week 4.1-4.11 studio	
Leerstoel	CP	
Minimum aantal deelnemers	2	
Maximum aantal deelnemers	24	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR0052	Design Studio: Architecture and Urbanism Beyond Oil	12
Responsible Instructor	Prof.dr.ing. C.M. Hein	
Course Coordinator	Ir. H.A. van Bennekom	
Contact Hours / Week x/x/x/x	0/X/0/X	
Education Period	2 4	
Start Education	2 4	
Exam Period	none	
Course Language	English	
Expected prior knowledge	completed MSc1	
Course Contents	<p>An end to our petroleum-based lifestyles and the use of renewable energies will impact our cities and buildings. The Studio Architecture and Urbanism Beyond Oil argues that we have to first understand the enormous collective presence of oil in the built environment, its impact on production processes, financial flows, and associated social and cultural patterns in our everyday environment, and the long history of oils impact on our lives. Then, we can imagine the needs and spaces of the future and transform our existing landscapes, cities and buildings. The Architecture and Urbanism Beyond Oil studio starts with an investigation of how petroleum its extraction, refining, transformation, and consumption has shaped our built environment in visible and invisible ways around the world over the last 150 years. Some students have built on their history thesis exploring oil depictions in Hollywood films or evolving mental maps of oil as a foundation or design. Others have explored the historical development of sustainable architecture through the elective "Building Green." The studio identifies global landscapes of energy and oil. It maps and translates the findings into accessible visuals, with the goal to develop an architectural, urban or landscape project that address these findings and propose new uses and solutions. The studio has included analysis of the relevance of oil for the urban and architectural form of the port and city of Rotterdam. Students have imagined possible transition trajectories, notably suggesting a recuperation of the oil-dedicated spaces from the sea-side and new connections across the river. Other students have imagined the transformation of gas stations as lifestyle hubs, roads as energy generators, or floating self-sustaining cities. Design strategies developed in the studio can be applied to cities around the globe and possible research destinations including Rotterdam, Dunkerque, Philadelphia, Houston, and Curacao.</p>	
Study Goals	<p>Architectural and urban design are anchored in larger political, economic, social and cultural contexts. Students will learn how to place their design into the global context of oil as a commodity, the generator of financial flows, and as a mindset. They will do primary research on Rotterdam as a case study. They will work in groups on a chosen location and develop a project that acknowledges the larger theoretical and methodological premises of the course and that takes into account the different disciplinary backgrounds of the participating students.</p>	
	<p>The course is open to students in architecture, urbanism, real estate, heritage, architectural history, history and media studies, etc. and mirrors in its composition the nature of design practice.</p>	
Education Method	Lectures, discussions, and studio design work.	
Assessment	Grades will be based on course participation, assignments and the final project.	
Special Information	The maximum marking period is 10 work days.	
	Open for students from all Dutch institutions. External students please check: http://tinyurl.com/qam99u4	
Period of Education	Quarter	
Minimum aantal deelnemers	4	
Maximum aantal deelnemers	24	

AR0067	Architecture & Urban Design	12
Responsible Instructor	Dr.ir. M.G.A.D. Hartevelde	
Responsible Instructor	Dr.ir. R. Cavallo	
Course Coordinator	Dr.ir. M.G.A.D. Hartevelde	
Contact Hours / Week x/x/x/x	8 hours per week	
Education Period	4	
Start Education	4	
Exam Period	none	
Course Language	English	
Expected prior knowledge	Skills are acquired to incorporate an understanding of the design (process) attained with regard to architectural/urban history, theory, art and technology as well as relevant general knowledge of human sciences. Additionally, skills are acquired to incorporate an understanding of the design (process) attained with regard to the relation between buildings, public spaces and society's needs, including environmental aspects. During the trajectory of the Master 1, 2, 3 & 4 studios, the complexity of the architectural and urban design increases leading to a level fit for architectural/urban practice.	
Course Contents	<p>Interventions in the contemporary city need constantly to be grounded on sharp design approaches in order to respond adequately to the necessities of our times.</p> <p>Nowadays we meet in public atria and do shopping in malls; we move along covered walkways and go from street to street by taking shortcuts through the buildings of a city block. All kinds of buildings hybridised and became multi-functional anchors in the city serving thousands of people daily. The railway stations of today are entangled with the urban tissue, airports have become cities, conference centres and world expos temporarily change the urban composition, and museums are also leisure centres. In the recent decades, the amount and the proportion of public space within urban buildings has steadily increased, with much of it forming part of a larger interior and exterior pedestrian network. On the other hand the amount and size of public buildings within the urban context increased too, changing the way the contemporary city is constructed. However, still rarely designers approach the city as architecture or the building as urban design.</p> <p>For these reasons there is nowadays a great need of identifying the available design tools in order to plan effective future interventions in our cities. Particularly in the case of existing urban environments, design approaches require a conscious understanding of urban design as well as an adequate knowledge of changes in building typologies.</p> <p>In this design studio, architects and urban designers work together in the examination of the urban space as architectural space and the architectural space as urban space. In this experimental design project, students and staff are interested on one hand to the urban intervention in the built environment and its effect on architecture, and at the other hand to the architectural treatment of the city and its effect on urbanism.</p>	
Study Goals	<p>The student:</p> <ul style="list-style-type: none"> - understands the interrelation of architectural and urban design, to evaluate and create proposals for strategic interventions, with regard to spatial-social patterns and the culture of the city - evaluates skills in architectural and urban design to create an elaborate design proposal in typological terms related to use, ownership and meaning - creates an elaborate design proposal on the edge/overlap of both professions, satisfying formal, technical and functional requirements, including materialisation. 	
Education Method	Interactive studio work	
Assessment	Design / Research, presented in drawing form with written commentary and a model.	
Special Information	<p>The maximum marking period is 10 work days.</p> <p>The studio work includes an excursion to the site. Please, do not hesitate to inform with the course coordinators what this year's case studies is.</p>	
Period of Education	Quarter 4	

AR0072	Solar Decathlon	12
Responsible Instructor	Prof.dr.ir. A.A.J.F. van den Dobbelsesteen	
Course Coordinator	Ir. P.G. Teeuw	
Contact Hours / Week x/x/x/x	8 hours per week	
Exam Period	none	
Course Language	English	
Course Contents	<p>The Solar Decathlon is a bi-annual competition of solar homes built by universities across the world. TU Delft is also participating in this competition.</p> <p>This course is connected to active involvement of students participating in the TU Delft Solar Decathlon team. This course deals with the architectural and technical design and elaboration of the TU Delft entry to the Solar Decathlon competition.</p>	
Study Goals	<p>The student is able to design a coherent, significant, elaborated, correct and innovative design - on mainline and on aspects on MSC 2 level.</p> <p>Specified for this course; the student is able to:</p> <ul style="list-style-type: none"> - collaborate in a team with other students - work on a joint design of an energy-neutral or energy-producing house - integrate various aspects of sustainability into the design of the house - elaborate on components of the design challenge, related to architectural design, structural design and engineering, envelope design and engineering, climate design and engineering, HVAC systems, electrical systems etc. 	
Education Method	Tutorials, workshops, (mid-term) presentations, reporting, exhibiting	
Assessment	The design, report and oral presentations will be assessed by different criteria. Also the group attitude and pro-activity of the student will be reviewed.	
Period of Education	Semester	

AR0076	The New Town: Design Studio Africa		12
Responsible Instructor	M.J. Emmerik		
Responsible Instructor	Prof.dr. W.A.J. Vanstiphout		
Course Coordinator	M.J. Emmerik		
Instructor	Prof.dr. W.A.J. Vanstiphout		
Instructor	M.J. Emmerik		
Education Period	4		
Start Education	4		
Exam Period	none		
Course Language	English		
Summary	<p>This Research and Design studio is focused on one of the fastest urbanizing regions in the world: the African west coast between Cote d'Ivoire and Nigeria where more than a dozen agglomerations with millions of inhabitants are stretched over an area of approximately 500 miles. This creates an urban area with a potential coherence and accumulative value comparable to regions such as the East Coast of the United States or the Pearl River Delta in China.</p>		
	<p>The African 500 mile city however, in contrast to its American and Chinese stretches across five countries, with different political systems, economies working at different speeds and complex relationships with each other. On an urban level, they are connected by a dynamic of urbanization due to immigration and economic growth which brings huge pressures on the livability and ecological sustainability of the area. Conversely, the urbanization process itself is hugely pressurized by the effects of climate change, making linear city between Accra and Lagos one of the areas most at risk both from the rising of the sea level, and the swelling of rivers such as the Volta and the Niger.</p>		
	<p>But there is more holding this region together. This part of West Africa has a very old, precolonial, precolonial history of urban civilization and states, with great examples in the Dahomey and Benin kingdoms. This shared history was however hacked into pieces during colonial times, that also brought with them a series of trading posts later developing into the metropolises of today. There is, in other words a large historical heritage to be found on the ground as a cultural backbone to the 500 Mile City.</p>		
	<p>In this research and design studio students develop Urban and Architectural design projects based on extensive fieldwork in West Africa, exploring this area through the perspective of modern new town planning and try to conceptualize and explain these conurbation as part of the present global urbanization. How can we understand these large urban areas as a physical manifestation of its various backgrounds? How can we use the design models used by architects and urban planners for new town planning in the past to deal with this rapid urban growth? What are the contemporary planning issues of the new cities of the 21st century? Can the developed and developing nations learn from each other in the planning and development of new towns? And what effects does this have on the daily lives and the economies of the regions involved?</p>		
	<p>This course, in combination with The New Town: Lecture series (AR0023) is open for students from the master tracks in Architecture (MSc2) and Urbanism (Q4 elective). It is organized by the chair of Design as Politics in collaboration with the International New Towns Institute.</p>		
Course Contents	<p>In this research and design studio you will develop Urban and Architectural design projects based on extensive fieldwork in West Africa. We will concentrate on a massive transnational conurbation that is forming between Abidjan (Ivory Coast) and Lagos (Nigeria). We will explore this area through the perspective of modern new town planning and try to conceptualize and explain these conurbation as part of the present global urbanization.</p>		
	<p>The aim of the studio is to understand the development of this unplanned megacity, its effects on the daily life and local economies, and to explore the role that design and new town planning might play on many different scales in this urban situation where there is no strong role for a central state.</p>		
Study Goals	<p>After successful completion of this course you are able to:</p>		
	<p>Analyze the physical manifestation of rapidly urbanizing areas in relation to the social-economic and political context in which they emerge and to transform your findings into a design brief.</p>		
	<p>Develop strategic architectural or urban interventions that guide or facilitate rapid urban growth.</p>		
	<p>Reflect on western planning principles and their application to the African context and visa versa.</p>		
Education Method	<p>Design tutoring / Studio sessions / Presentations / Field research</p>		
	<p>One meeting each week, consisting of design tutoring and collective pin-up sessions combined with extensive field research.</p>		
Course Relations	<p>This studio is complemented by a theoretical introduction to New Town planning (AR0033). Enrollment to this lecture series is compulsory for students participating in this studio.</p>		
Assessment	<p>Assessment takes place based on a design project, your attendance and participation during the field research and a final presentation. More information will follow at the beginning of the course.</p>		
Remarks	<p>This studio is organized by the chair of Design as Politics in collaboration with the International New Town Institute, and a number of international global parties such as the Dutch ministry for foreign affairs, UN Habitat and local universities and development agencies. For more information see: www.designaspolitics.nl and www.newtowninstitute.org</p>		
	<p>Participating students are required to cover additional traveling expenses for a field trip to Africa (around 1300,- for travel and accommodation.)</p>		
Period of Education	<p>This course starts in the second semester (spring 2018)</p>		

AR0077	The Why Factory MSc2 Design Studio	12
Responsible Instructor	Prof.ir. W.G.M. Maas	
Course Coordinator	J. Arpa Fernandez	
Responsible for assignments	S. Gargaretas	
Contact Hours / Week x/x/x/x	0/0/0/X	
Education Period	4	
Start Education	4	
Exam Period	none	
Course Language	English	
Course Contents	<p>This course is a MSc2 studio, and is organized as a think tank. Studios at The Why Factory are content-driven design and research studios with a practical and theoretical scope. MSc2 studios are research labs and platforms that aim to analyse, theorize and construct future cities. They conduct a variety of investigations within the given world, and produce future scenarios beyond it: from universal to specific and global to local.</p> <p>MSc2 studios start with a specific brief and a statement on the future of urban life. Based on the brief, future scenarios will be developed leading to visionary, city-related designs.</p> <p>Students develop their specific approach to the brief and define the necessary scientific research. Calculations, simulations or modelling to support the studio work are elaborated in a parallel seminar: the MSc2 Future Models I seminar.</p> <p>The results of the research lead to a design project with consequent logic, convincing argumentation and illustrative and fantastic visuals.</p>	
Study Goals	<p>Upon completion of the Master 1, 2, 3 & 4 studio trajectory, the student:</p> <ul style="list-style-type: none"> - Has developed the necessary skills in architectural design that satisfy programmatic, aesthetic and technical requirements. - During the Masters trajectory, the complexity of the architectural design increases, leading to the level required for professional practice. - During this period, skills are acquired to increasingly incorporate an understanding of design processes, architectural history and theory, art, technology and human sciences. - Additionally, skills are acquired to incorporate into design an understanding of the relation between territory, buildings, spaces and societies needs, including environmental aspects. - During Master 1, 2, 3 & 4, skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing. - Together with the building technology training, during Master 1, 2, 3 & 4 skills are acquired to incorporate an understanding of the design process with regard to structural design, materialisation of buildings, comfort and climate control. 	
Education Method	<p>Atelier: 150 hours Self study: 270 hours</p>	
Assessment	Presentation	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Quarter	
Maximum aantal deelnemers	30	

AR0086	Infrastructure and Environment Design	12
Responsible Instructor	Dr. F.L. Hooimeijer	
Responsible Instructor	Dr.ir. T. Kuzniecowa Bacchin	
Course Coordinator	Dr. F.L. Hooimeijer	
Instructor	Dr.ir. T. Kuzniecowa Bacchin	
Instructor	Dr. F.L. Hooimeijer	
Contact Hours / Week x/x/x/x	0/0/0/X	
Education Period	4	
Start Education	4	
Exam Period	none	
Course Language	English	
Course Contents	<p>With urgent urban challenges such as climate adaptation, energy transition, and continued urbanisation, the urgency of integrating planning and design with urban engineering increases. The implementation of new technological interventions and the utilisation of the natural system is hampered by the lack of an integrated approach incorporating urban planning and design decisions. Meanwhile, urban and economic growth increasingly competes for infrastructure and environment, affecting the success or failure of the daily operating systems of cities and thereby urban competitiveness. The challenge is to fundamentally re-think the urban landscape in light of new technologies. The question is how to renew existing cities by integrating the parameters of the natural system, as well as technological innovations directly into urban development opportunities arising from spatial planning and design.</p> <p>In order to stimulate and design the synergy between design and engineering this course offers the possibility for architects, urban designers and landscape architects to get well acquainted with the concepts and language of civil engineers on the subject of infrastructure and environment; at the same time the civil engineers will get acquainted with the world and language of designers.</p>	
Study Goals	<p>In order to create an emerging path where synergy between the disciplines makes sure that technology becomes embedded in the design process, this course offers possibilities for both urban designers and civil engineers to get well acquainted with each others discipline. This is achieved by collaborating with the course Technology and Practice Water Management in Urban Areas at (CT5510) that elaborates on the technology of building site preparation and will show the collaborative worlds of soil and water.</p> <p>The goal of this course is that students will be able to:</p> <ul style="list-style-type: none"> Formulate their design perspective that is based in a conceptual or theoretical framework. Identify and discuss the synergy between natural conditions and technological potential and possibilities in urban environments. Analyse and design infrastructures on a regional scale and on the scale of the section. Identify and discuss the tension between public and private development in infrastructures and environments. Apply methods concerning the appraisal of sustainable urban environments and infrastructure. Demonstrate in a design the connection between the natural system and technical possibilities in urban environments. Be able to translate analyses into design and the design into a formal plan. Perform inter-disciplinary working. 	
Education Method	<p>Readings in the field of knowledge brokerage, technical entrepreneurs, landscape ecology, sustainability and urban theory for a better understanding and theoretical framing of the individual project.</p> <p>Exercises in building a theoretical or conceptual framework and translating analyses into design.</p> <p>Interdisciplinary learning by taking class with civil engineers and policy students in which understanding can be created for each others knowledge and skills, where fences between the knowledge fields can be broken down, where contacts can be made for later in professional careers. The Urban Water Management course starts in Q3 with 8 lectures of which the compulsory ones are indicated in the schedule, the others can be viewed on colleggerama. In Q 4 there is an assignment, excursion and workshop with the urban water management students.</p> <p>Workshops with professionals and with students of technical background to understand differences in language and concepts and learn to apply the technical information to the spatial context.</p> <p>Individual or group project as elaboration of the workshops.</p> <p>Project in practice: research assignment with a partner in practice to answer to the goals of this course. It needs to be with a company or institute, municipal department with a technical focus. With them you need to arrange that you work on a certain research or design project that can be done in 10 weeks, minus the time you need for the other activities in this course and your other electives. You can also take the summer months to extend the internship. The result is a report where, taking in consideration the learning goals for this course, a reflection is done on the project and/or way of working.</p>	
Literature and Study Materials	<p>Literature list is given with the course outline. It covers theory on sustainability, knowledge brokerage, eco system services, urban ecology, infrastructure and urban design.</p>	
Assessment	<p>The course results in an individual project or a project in practice. The content of individual project is:</p> <ol style="list-style-type: none"> 1) Use of theory to frame your research and design perspective. 2) Research and analyses of technical data/infrastructure of your site resulting in an environmental and infrastructure potential map. 3) Research and analyses of the surface of your site, resulting in a surface potential map. 4) Synthesis between 2 and 3 and together with 1 resulting in a (spatial) concept. 5) Concept translated in a performance based urban design that will be translated into a formal plan. 	
Remarks	<p>This course is combined with: Technology and practice Water management in urban areas CT5510 4ects</p> <p>Summary: master course on design and planning of the urban water management system. Water fluxes and relevant processes in water and soil. Storm water, surface water and groundwater drainage design (quantity and quality) in interrelation with subsidence and based on functional demands and standards. Storm water infiltration and building site preparation. Water wise spatial planning and urbanism. Water management policy development.</p> <p>Responsible Professor: Nick van der Giesen Course Coordinator: Frans van der Ven</p> <p>This course includes the course AR0093 Infrastructure and Environment Method Module. It is not possible to take both this course and AR0093.</p>	
Period of Education	Quarter	

AR0094	Bucky Lab A	12
Responsible Instructor	Dr.ing. M. Bilow	
Course Coordinator	Dr.ing. M. Bilow	
Education Period	3 4	
Start Education	3	
Exam Period	none	
Course Language	English	
Course Contents	<p>The focus of the semester is an innovative building construction or facade design for an architectural related building, this may be a part of a building, a pavillion or a facade. The task is a building component in which all the important technical and architectural aspects of a building are integrated in. The first three weeks students individually research and analyse the assignment in order to come up with an innovative concept. The remaining weeks of the semester are dedicated to a design by research process in which all the main aspects of the design, from applied mechanics, material propertie to production techniques are researched ending in an integrated final design. Computer modeling, virtual and full scale material prototyping are part of the process.</p> <p>This course is a shorter version of the already known bucky lab, so expect the same fun but in a smaller package ! We try to focus more on the construction and will reduce the building physics and structural engineering part.</p>	
Study Goals	<p>The student is able to design a coherent, significant, elaborated, correct and innovative design - on mainline and on aspects on MSC 2 level.</p> <p>Specified for this course: the student</p> <ul style="list-style-type: none"> - has an understanding of the relation between design, society, realisation, materialisation and functioning. - is able to design and evaluate building components based on their function and performance. 	
Education Method	Design consultation and computer modeling. Design by prototyping	
Assessment	Individual report of innovative concept and reports in team of two students of design by research process from concept to final design, main focus the level of integration of all the researched aspects.	
Special Information	The maximum marking period is 10 work days.	
Period of Education	summer semester starting in week 6	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR0096	EXTREME technology	12
Responsible Instructor	Prof.dr.ing. U. Knaack	
Course Coordinator	Ir. R. Schroën	
Contact Hours / Week	12 hours per week x/x/x/x	
Education Period	4	
Start Education	4	
Exam Period	none	
Course Language	English	
Course Contents	<p>The project is about building in a extreme situation, in respect to climate, location and function. Essence is the interaction between the extreme circumstances, the technical solutions, and the architecture. Extreme circumstances do request technical solutions which will be the starting point for the design development. The designer has to direct the 'engineer questions and answers', towards the articulation of the form which is based on integration of aesthetic and technology.</p> <p>"Die Architectur des 21 Jahrhunderts hat ihre Unschuld verloren, Gebaude müssen etwas leisten" Stefan Behnisch.</p> <p>In the end the student is able to understand technical solutions, to reflect on them, to applicate them and to transform them. And the student is able to design a coherent design result.</p>	
Study Goals	<p>The student is able to design a coherent, significant, elaborated, correct and innovative design - on mainline and on aspects on MSC 2 level.</p> <p>Specified for this course:</p> <p>In the end the student is able to design a healthy coherent building in extreme conditions with a focus on technical solutions: the student is able to apply, reflect and transform principles concerning climate, construction and structure.</p>	
Education Method	Design project	
Assessment	The design result including the aspects structure, climate and envelope.	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR0098	Sustainability project design and elaboration	12
Responsible Instructor	Prof.ir. M.F. Asselbergs	
Responsible Instructor	Prof.dr.ir. A.A.J.F. van den Dobbelsteen	
Course Coordinator	Ir. P.G. Teeuw	
Course Language	English	
Course Contents	This course is connected to active involvement of students participating in design teams related to practice. This course deals with the architectural and technical design and elaboration.	
Study Goals	The student is able to - collaborate in a team with other students - work on a joint design of a specific (building) design project - integrate various aspects of sustainability into the design of the project - elaborate on components of the design challenge, related to architectural design, structural design en engineering, envelope design and engineering, climate design and engineering, etc.	
Education Method	Tutorials, workshops, (mid-term) presentations, reporting, exhibiting (if applicable)	
Assessment	Portfolio of the design, report and oral presentations will be assessed by different criteria. Also the group attitude and pro-activity of the student will be reviewed. All depending on the specific project .	
Period of Education	Varies.	

AR0149	ON SITE, Landscape architectonic explorations	15
Responsible Instructor	Dr.ir. I. Bobbink	
Course Coordinator	Dr.ir. I. Bobbink	
Education Period	4	
Start Education	4	
Exam Period	none	
Course Language	English	
Required for	students need to be master students	
Expected prior knowledge	design skills	
Summary	Please check the presentations on the Q4-free choice projects for more specific information about the site and the exact theme - this differs every year. In the course, we will study on how to define identity and how to transform ordinary spaces into specific places. We will experiment with different methods and tools. Depending on the theme we might operate as one group.	
Course Contents	In this course, you will learn how to analyse, interpret the spatial identity of a site and translate it into a landscape architectonic design. The scale of the assignment can differ from a garden to an (urban)landscape. Landscapes and cities with a strong identity are highly valued by people. Identity, heritage, continuity and transformation are important notions of todays design practise. In the course, we will study on how to define identity and how to transform ordinary spaces into specific places. Through fieldwork, the site will be studied across experimental analysis methods and techniques, also borrowed from other disciplines, like social sciences and art. The experimental analysis deals with questions related to a site exploration and notation and how to construct a design concept. It depicts the subjective, dynamic and intangible characteristics of the place such as: processes, cultural activities, memories, stories, experiences, rituals by for examples sensorial perception, tracing narratives, investigating historic sources, mapping spaces in various ways and working with experimental photography, etc. As a frame, the course offers an interdisciplinary debate on the theory of place making which feeds the design experiment. These design experiments can become models, films or real constructions in the public realm. The course will involve third parties, for example ongoing research in the section of landscape architecture, assignment from practise or can be part of an event like the Oerol festival on Terschelling etc.	
Study Goals	- to acquire knowledge of the physical form of a specific landscape; - to acquire and use theoretical knowledge on place making; - to study, visualise and edit the topography and spatial identity of a landscape (experimental analyses); - to build a relationship among landscape architecture and other fields of science like geology, archaeology, ecology, history, anthropology, and other creative disciplines like art, architecture and urbanism; - to design a landscape architectonic space.	
Education Method	studio work (experimenting) interactieve lectures workshops fieldwork	
Assessment	oral presentation with the help of: drawings models films or real constructions in the public realm	
Period of Education	Quarter 4	
Minimum aantal deelnemers	15	
Maximum aantal deelnemers	15	

AR0225	MSc2 Studio: Urban (Re)Development Game	12
Responsible Instructor	Y. Chen	
Course Coordinator	Y. Chen	
Instructor	Prof.dr. E.M. van Bueren	
Instructor	Dr.mr. F.A.M. Hobma	
Instructor	Mr.dr. P. Jong	
Instructor	Dr. C. Maat	
Instructor	Dr.ir. M. Spaans	
Instructor	Dr.ir. P.L.M. Stouten	
Instructor	Ir. H.W. de Wolff	
Instructor	Dr.ir. R. Binnekamp	
Instructor	Dr.ir. S. Zijlstra	
Instructor	Dr.ir. L. Volker	
Instructor	Dr.ir. R.S. van der Kuij	
Instructor	Dr.ir. T.A. Daamen	
Instructor	Dr.ir. E.W.T.M. Heurkens	
Instructor	Prof.dr. P.J. Boelhouwer	
Instructor	Drs. P.W. Koppels	
Instructor	Dr.ing. G.A. van Bortel	
Instructor	Y. Chen	
Instructor	Dr.ir. E.H. Stolk	
Instructor	Dr. W.J. Verheul	
Instructor	Ir. L.G.C. Heijnders	
Instructor	Dr. I. Nase	
Contact Hours / Week	0/0/0/X	
x/x/x/x		
Education Period	4	
Start Education	4	
Exam Period	4	
Course Language	English	
Expected prior knowledge	Semester 1 of Master course from Faculty of Architecture and the Built Environment	
Summary	The course is meant for master students from the department of Architecture and Urbanism who have not followed any economic course. During this unit course the theory and the practice of managing urban (re)development processes is explored through lectures, role-playing simulation in urban (re)development project at area scale, as well as at the portfolio and object scale. A third component is finance.	
Course Contents	The unit of course aims to train students to grasp an integral approach when managing urban (re)development both at the urban area scale and at the portfolio and object scale. Through a role-playing simulation project, students will be given design assignments that drive them to (re)develop a complex urban location with both residential and non-residential elements.	
	The assignment aims at drawing up a development plan for the location. The students, through this exercise, will play the roles of local authorities and private actors as well as third parties of the area and negotiate in their respect roles to reach an optimal solution. Students will conduct feasibility analysis of a particular real estate objective at the portfolio and object scale.	
	This unit will equip students with sufficient skills to deal with the assignment in the simulation with a series of lectures and sessions of fieldwork, role assistance and group supervision. Students will learn about the context, goal, actors and means of realisation related to each phase of the urban area development cycle. In this process, students have to consider how to make a balance between market demand, spatial quality requirement with available means.	
Study Goals	The unit aims to enable students to:	
	- understand the changing context of global and local environment and economic, social and cultural elements which contribute to various urban problems	
	- understand the context, content, players and means of implementation during the cyclic phases of urban area development; identify positions, objectives and means as well as strategies of involved parties in different phases	
	- analyze the social-economical and urban context as well as the status and function the area can possibly achieve in the future	
	- set up functional programs for the area in question; identify spatial possibilities and, the feasibility and financial consequences of investments; develop institutional and financial plans for different phases in order to manage and oversee the development design and implementation process, thereby effectively integrating the input of the various actors in the project	
	- conduct feasibility studies of real estate portfolio strategy with involved and/or potential stakeholders and the cost-benefit analysis of a particular building block at the object level	
	- integrate multidisciplinary knowledge through teamwork, negotiate and communicate with different parties, present project results and reflect the development process with an analytical report	
Education Method	The program of The Urban (Re)development Game comprises three parts:	
	- Theory: the knowledge of the theory on managing urban development is acquired through lectures and literature study	
	- Practicum: the practice skills are acquired through role-playing in a management game, with support from role lectures, supporting literature and consultation provided by role assistance and group supervision. Students are asked to work on a master plan of a specific location and then examine its feasibility plan of a particular role at portfolio and object level.	
	-Real estate finance: the knowledge of finance is acquired through lectures and literature study	
Literature and Study Materials	The compulsory literature for Theory is:	
	Franzen, A., Hobma, F., de Jonge, H. and Wigman, G (eds) (2011) Management of Urban Development Processes: governance, design, feasibility. Amsterdam: Technpress.	
	Adams, D. & S. Tiesdell (2012), Shaping Places: Urban Planning, Design and Development. London: Routledge.	
	Other digital compulsory and supporting literature is available from the blackboard and is updated yearly.	
Assessment	The result will be determined by:	
	- the theory component, assessed through individual 3,5 hour exam	
	- the practice component, assessed through the quality of design assignment, the quality of presentation performance, the quality of argument and reflection in the end report	
	- The finance component, assessed through assignment and exam	

Exam Hours	Theory: 3,0 hours
Special Information	The maximum marking period is 10 work days.
Period of Education	Quarter

AR0681	Heritage and Architecture Design Studio: Research and architectural design	12
Responsible Instructor	Ir. W.L.E.C. Meijers	
Responsible Instructor	Prof.ir. W. de Jonge	
Course Coordinator	Ir. W.L.E.C. Meijers	
Instructor	Ir. W.L.E.C. Meijers	
Instructor	Dr. S.A. Stroux	
Instructor	Ir. A.C. de Ridder	
Instructor	Ir. W. Willers	
Contact Hours / Week x/x/x/x	8 hours per week	
Education Period	3 4	
Start Education	3	
Exam Period	none	
Course Language	English	
Course Contents	The chair of Heritage & Design is concerned with re-designing and researching buildings of significance in cultural-historical context. In this studio the cultural, historical, societal and urban context of a built structure are analysed and interpreted in relation with architectural and technical features. Historical development, urban context, typology, materialisation, technical elaboration and related literature are the main issues in a synchronic method of analysing and re-designing. Students individually create a re-design that shows a meaningful translation of an intervention strategy into the spatial, functional, urban, material and technical design. The design choices are based in an understanding in relation to cultural value.	
Study Goals	Upon completion of the Master 2 studio the student is able to: - draw conclusions from analyses and present these in an academically substantiated and comprehensive way, - define a relevant design brief and create an architectural redesign for a building or ensemble that he/she has chosen as an etude, - apply professional knowledge and design tools related to architecture, building technology and cultural value, - focus on moral sensibility, analysis, creativity and judgement skills regarding architectural ethics - explain and reflect on meaning and design development with relevant presentational means - communicate design ideas at an advanced level through verbal presentations, visual and written media.	
Education Method	Design coaching in studio during educational weeks. The design studio features individual and group tutorials, and study specific to the design project.	
Literature and Study Materials	To be announced via the tutor and/or the coordinator and/or Brightspace.	
Assessment	Presentations will be held during the semester and a final presentation at the end of the semester. Drawings, texts, models.	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Q1 / Q2 / Q3 / Q4: semester weeks 1.6 - 2.10 / 3.6 - 4.11	
Leerstoel	Heritage & Architecture	
Maximum aantal deelnemers	45	

AR0896	Van Gezel tot Meester	21
Responsible Instructor	Ir. E.J.G.C. van Dooren	
Responsible Instructor	L.A.M. Willekens	
Course Coordinator	Ir. E.J.G.C. van Dooren	
Contact Hours / Week x/x/x/x	160 hours per semester	
Education Period	1 2	
Start Education	1	
Exam Period	none	
Course Language	Dutch	
Course Contents	<p>Didactiek in ontwerpprojecten In een stage (Bachelor eerste jaar) leer je onder supervisie het vak van ontwerpbegeleider; de ervaring en problemen die je opdoet in de stagegroep kun je terugkoppelen in de onderwijsgroep. In enkele werkcolleges wordt onderzocht hoe studenten te begeleiden in het leren ontwerpen.</p>	
Study Goals	<p>Ontwerpvaardigheid en ontwerpproces In een aantal ontwerp oefeningen wordt het ontwerpproces expliciet onderzocht. Door het ontwerpproces enkele keren te doorlopen en specifiek te bestuderen wordt inzicht verkregen in meer algemene principes tijdens het ontwerpen en de eigen, individuele inbreng; ook valkuilen kunnen zo aan het licht komen. Zoals een topsporter op onderdelen en het geheel traint om tot meesterschap te komen, zo kan een ontwerper ook zijn eigen ontwerpproces trainen. Door het kanaliseren van gewoontes en het bewust worden van essentiële ontwerpmomenten kom je tot meesterschap in het ontwerpproces.</p> <p>De student is in staat een coherent, betekenisvol, uitgewerkt, juist en innovatief ontwerp te maken en onderzoek te doen - op hoofdlijn en in details - op Msc 2 niveau.</p> <p>Specifiek voor deze cursus: de student</p> <ol style="list-style-type: none"> 1. heeft inzicht in het (eigen) ontwerpproces en in het (ontwerp)docentschap 2. is in staat korte ontwerp opdrachten te doen en heeft de basisvaardigheden als (assistent) ontwerp docent 3. is in staat een kort onderzoek te doen naar het (eigen) ontwerpproces en de aspecten van het ontwerpdocentschap 	
Education Method	<p>- stage als assistent-begeleider in een eerstejaars ontwerpproject - ontwerponderwijs op atelier (meerdere ontwerp opgaves) - enkele werkcolleges</p> <p>Kennis en toepassing zijn tijdens het leren met elkaar geïntegreerd. De cursus is opgebouwd uit een groot praktijk gedeelte (ontwerpen / begeleiden) met op een aantal momenten compacte input van kennis en theorie.</p> <p>Het ontwerp onderwijs vindt in principe plaats op dinsdag en vrijdag middagen, en een aantal werkcolleges op woensdagmiddag - wijzigingen in verband met de stage voorbehouden De stage vindt plaats in het tweede kwartaal.</p>	
Assessment	<p>Didactiek stageverslag waarin opgenomen een observatie en een reflectie (9 studiepunten). Ontwerpresultaten en reflectie op ontwerpproces (12 studiepunten).</p>	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Semester	
Maximum aantal deelnemers	hangt af van beschikbare stageplaatsen	

AR2AD010	MSc2 Dwelling design studio 'Global Housing'	12
Responsible Instructor	Ir. H.A.F. Mooij	
Course Coordinator	P.S. van der Putt	
Instructor	Prof.ir. D.E. van Gameren	
Education Period	3 4	
Start Education	3	
Exam Period	none	
Course Language	English	
Course Contents	The MSc 2 AR2AD010 Global Housing Studio focuses on the worldwide issue of affordable mass housing schemes. The assignment involves designing a housing project, with the aim of providing solutions that cater for the creation of socially and ecologically sustainable urban environments as an alternative to current practices of large-scale developments, public and private, based on models. Participating in the studio requires a site visit to Ahmedabad, India of approximately two weeks.	
Study Goals	Learning Goals MSc 1/2 GLOBAL HOUSING	
	After completion of this course the students is able to:	
	<ol style="list-style-type: none"> 1. Recognise and explain morphological and typological qualities of urban housing neighbourhoods . 2. Formulate a design strategy for affordable housing in relation to densities, multiple user groups, access & circulation, privacy & community and patterns of daily life. 3. Design and develop an urban plan for affordable housing on a proposed site. 4. Design and develop an urban housing neighbourhood accomodating the various relations of the design strategy. 5. Design and develop different dwelling types in relation to specified needs and usability. 6. Identify and explain the qualities of the proposed design in relation to project references and experience. 7. Identify appropriate building techniques and construction systems to be employed as part and parcel of the design proposal. 8. Produce meaningful visual and physical outputs to communicate the project to an audience of experts. 	
Education Method	Tutoring of the design progress in the design studio. Workshop week	
Assessment	Examination takes place in the form of a mid-term and final oral presentation of design and analysis in drawings and images, followed by an oral examination in questions and answers.	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Education starts in week 3.6 and ends in week 4.11	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR2AI010	Interiors Buildings Cities MSc2 Design Project	12
Responsible Instructor	Prof. D.J. Rosbottom	
Course Coordinator	Ir. S. Pietsch	
Instructor	Ir. M.E. Stuhlmacher	
Instructor	Ir. L.M.M. de Wit	
Instructor	M. Pimlott	
Instructor	D.H.G. Somers	
Instructor	Ir. S. Pietsch	
Instructor	Ir. J.S. Zeinstra	
Instructor	Ir. drs. E.P.N. Schreurs	
Instructor	S.S. Mandias	
Instructor	Prof. D.J. Rosbottom	
Contact Hours / Week	4 hours per week	
x/x/x/x		
Education Period	1	
Education Period	2	
Education Period	3	
Education Period	4	
Start Education	1	
Start Education	3	
Exam Period	none	
Course Language	English	
Summary	The Chair of Interiors Buildings Cities is concerned with making buildings, in places, for people. It conceives of the city, at each scale, as a work of architecture and, hence, the responsibility of the architect. This developing discussion of the chair is contextualised through an annual theme.	
Summary	The MSc2 course, Thinking through Making, encompasses design research investigations into thinking about, making and representing architecture, up to and including 1:1 scale.	
Course Contents	The MSc2 programme is a platform for special research and design projects proposed by members and associates of the Chair of Interiors Buildings Cities. At the heart of each of these projects, renewed every semester, is a research question or opportunity that yields possibilities for responses through design, and realised in tangible artefacts or models.	
Study Goals	Upon completion of the Master 1, 2, 3 & 4 studio trajectory the student:	
Study Goals	- Has developed the skills in architectural design satisfying both aesthetic and technical / functional requirements. During the trajectory the complexity of the architectural design increases leading to a level fit for architectural practice and a training period for professional accreditation as architect.	
Study Goals	- During this trajectory skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology and human sciences.	
Study Goals	- Additionally, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and society's needs, including environmental aspects.	
Study Goals	- During Master 1, 2, 3 & 4 process skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing.	
Study Goals	- Together with the training with regard to aspects of building technology, during the Master 1, 2, 3 & 4 process skills are acquired to incorporate an understanding of the design process with regard to structural design, materialization of buildings and interiors, comfort and climate design.	
Study Goals	A specific description of the aims of the studios will be published in the Studio Manual, to be distributed at the beginning of the course.	
Education Method	The design studio features individual and group tutorials, and study specific to the design project as well as several dedicated thematic exercises, internal lectures and seminars that pertain to and inform the subject.	
Literature and Study Materials	to be announced upon beginning of the course	
Assessment	Assessment will focus on the research work undertaken by the individual student within the set theme; the specific research questions raised within; the specific design study that responds to those questions; the representation of that study in a physical artefact made by the student.	
Assessment	Products: models up to 1:1 scale; drawings / texts if applicable	
Assessment	The project will be assessed on:	
Assessment	- the position that is formulated with regard to the brief and its context; the contribution to a collective discourse.	
Assessment	- the appropriateness of the intervention with respect to the assignment; the feasibility and translatableability of the idea into a physical manifestation.	
Assessment	- aesthetic and technical / functional qualities; the elaboration throughout the respective scales	
Assessment	- the quality of the presentation, the products and the argument.	
Assessment	- the consistency and coherence and development of the students work during his / her process	
Special Information	The maximum marking period is 10 work days.	
Period of Education	The project starts in week 6 of the first quarter and extends towards the end of the semester. An introduction meeting will take place at the beginning of the semester.	
Leerstoel	Interiors Buildings Cities	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR2AP012	MSc2 Public Building Design Studio	12
Responsible Instructor	Dr.ir. M.G.H. Schoonderbeek	
Responsible Instructor	Dr.ir. S. Komossa	
Course Coordinator	S. Milani	
Course Coordinator	Ir. A.M.F. van Dam	
Instructor	Ir. F. Geerts	
Instructor	Dr.ir. S. Komossa	
Instructor	Ir. M.J. de Haas	
Instructor	Ir. A.M.F. van Dam	
Instructor	Dr.ir. M.G.H. Schoonderbeek	
Instructor	S. Lee	
Instructor	O.R.G. Rommens	
Instructor	A.S. Alkan	
Instructor	N.E.A.I. Deboutte	
Instructor	N. Marzot	
Instructor	S. Milani	
Contact Hours / Week x/x/x/x	8 hours per week	
Education Period	3	
Start Education	4	
Exam Period	3	
Course Language	none	
Course Contents	English	
Course Contents	<p>A-PB's MSc. 2 studio focuses on the conditions under which architecture operates through the limits of global urbanization and emerging contexts, as well as interdisciplinary processes that blur disciplinary bounds. These conditions allow for elaboration on formal expressions of the architects position in regard to both the disciplinary context and the breach of the disciplinary boundaries themselves.</p>	
Course Contents	<p>Architecture distinguishes itself from mere building: it aspires to accomplish above and beyond meeting necessities and to provide something out of ordinary. We can surmise that architecture stipulates "exceptions" that set itself apart from everyday built environment. Therefore, architecture deals with specificity rather than generality.</p>	
Course Contents	<p>A-PB's MSc. 2 design studio aims to initiate various design agendas from the specificities and/or exceptionalities of a particular material culture of a place arriving at a fully elaborated architectural design. The studios hinge around the specificities through which the students are confronted with singular aspects of different situations. By elaborating on the core issues and eventually defining their own design positions, students are expected to implement their research into design practice within the collective framework.</p>	
Course Contents	<p>The sites and urban conditions that vary each year provide testing ground for diverse scales of inquiry, intervention, analysis and cultural perspective. Architectural means, instruments and techniques provide operative interface but also focus on a set of precisely delineated a priori as compositional constraints. Hence design research is exercised by and within the instruments, techniques and languages of architectural design.</p>	
Course Contents	<p>The cities of the design groups will be announced shortly before the enrollment period starts. Each enrolled student will have an opportunity to choose the group of his/her preference.</p>	
Course Contents	<p>Each city-group requires an excursion abroad. The excursion may cost around 400 or more per person for transport, lodging and other expenses depending on the location.</p>	
Study Goals	<p>Learn to design an architectural object that meets aesthetic as well as technical and functional requirements.</p>	
Study Goals	<p>Understand the relationship between architectural work and its context, as well as the ways to relate architectural experimentation to culturally conducive urban environment.</p>	
Study Goals	<p>Understand the role of architects and architecture in society.</p>	
Study Goals	<p>Develop the ability to clarify a design project to others by means of images, spoken and written words.</p>	
Education Method	Studio: 112 hours	
Education Method	Lectures: 8 hours	
Education Method	Independent study: 216 hours	
Assessment	Studio attendance & participation	
Assessment	Excursion participation	
Assessment	Mid-term (week 4.2) and final (week 4.10) reviews	
Assessment	(Specific weeks & dates of the presentation may be subject to change according to the official academic calendar of the university.)	
Special Information	<p>The studio work may include and be supplemented by charrettes, informal/intermediate reviews, as well as by supplementary lectures and workshops.</p>	
Special Information	<p>Shortly prior to the beginning of the semester, each student will have an opportunity to choose and sign up for one of the city-groups. The student must select and express the first, second and third preferences. When the preferences are missing, the student will be randomly assigned to a city-group.</p>	
Special Information	<p>After the city-studio selection process, each student will also be given an opportunity to switch places 1:1, if necessary and at the discretion of the studio instructors.</p>	
Special Information	<p>During the first half of the semester, until the midterm review, the students will work in groups.</p>	
Special Information	<p>The maximum marking period is 10 work days.</p>	
Special Information	<p>For more information, contact: pb-edu-bk@tudelft.nl</p>	

Period of Education	Semester
----------------------------	----------

AR2AT020	Agential Materialism Architecture Theory Design Studio	12
Responsible Instructor	Dr.ir. H. Sohn	
Course Coordinator	Dr.ir. H. Sohn	
Instructor	Dr.ir. A. Radman	
Instructor	Dr.ir. H. Sohn	
Instructor	Dr.ir. S. Kousoulas	
Instructor	Dr. A. Altes Arlandis	
Contact Hours / Week x/x/x/x	8 hours per week	
Education Period	4	
Start Education	4	
Exam Period	none	
Course Language	English	
Required for	This course is an elective choice for the required MSc2 studio credits.	
Expected prior knowledge	Students with interest and motivation in theoretical and conceptual aspects of architecture design are encouraged to join this studio.	
Course Contents	<p>The Architecture Theory Studio Agential Materialism is a design studio with a strong theory component that engages architecture as a material-discursive practice, in which the conceptual and the non-conceptual (theory & design) are regarded as fully agential and relational: they happen and emerge in the same space-time-matter continuum. In our studio we will investigate conceptual terms such as matter, objects, things, bodies, as well as the notions of process, change, emergence and agency, among many others, as a means to investigate their application and potential for architecture design. Our studio explores the power of concepts as methods for practice, and experiments with the affective capacities of matter as fundamental in the genesis of form.</p> <p>The thematic and design assignments of our studio vary, but always depart from actions rather than programmatic or functional prerequisites, foregrounding the potentials of architectural, material and spatial agencies involved in the design process.</p> <p>This studio is highly experimental and hands-on in regards to the material aspects of theory as practice. It welcomes students who are inclined to explore unfamiliar (yet exciting) themes, raise interesting questions and problems, and experiment with ideas and matter to make their design practice and skills more meaningful.</p>	
Study Goals	<p>After completion of this design studio the participants will:</p> <ul style="list-style-type: none"> have a solid base of knowledge on recent literature in the humanities and the social sciences and their relation to architecture practice and theorization have acquired solid knowledge-base to discern theoretical, analytical and synthetic methodologies and their application in the design process. have developed a deeper understanding of the relationships, potentials and interactions of different agents involved in any design process. have developed experimental and innovative design skills through conceptual, abstract and theoretical thinking. have experimented with different media and tools as aids for the communication of architectural proposals and ideas. have acquired research skills, and will be able to apply these in reflections and theoretical argumentation of their design projects. will have acquired understanding of the societal, cultural, technological and ethical dimensions of a design process that includes human and non-human actors alike. 	
Education Method	<ul style="list-style-type: none"> monthly lectures and weekly theory seminars discussion on related themes weekly design studio reviews presentations (interval & final) with visiting critics 	
Course Relations	<p>This course is compatible with the Architecture Theory Thesis course (AR2AT030). We encourage students to follow both courses in the same semester.</p> <p>Students wishing to participate in both courses are advised to register in the enrolment period for the Spring semester.</p>	
Literature and Study Materials	<p>Study material, reading lists and other relevant course-related literature will be made available to the students prior to the first meeting.</p>	
Prerequisites	<p>Students wishing to participate in this course are strongly recommended to have completed the necessary credits for MSc1.</p>	
Assessment	<ul style="list-style-type: none"> methodology development architectural design proposal theoretical reflection 	
Special Information	<p>This course is highly compatible with the Architecture Theory Thesis (AR2AT030). Students wishing to follow this studio are advised to enrol in both courses. Please note that the courses have different education periods (Q1/3 & Q4 respectively)! For questions please contact our student assistants or the academic coordinator at AT-MSc-BK@tudelft.nl</p>	
Elective	Yes	
Tags	<ul style="list-style-type: none"> Abstract Adventurous Design Group work Intensive Process Research Methods 	
Period of Education	This studio is offered only in Q4 (Spring term) of each academic year.	
Leerstoel	Architecture Theory Chair	
Maximum aantal deelnemers	20 students	

AR2CP010	MSc2 Complex Projects Design and Research Studio	12
Responsible Instructor	Prof.ir. C.H.C.F. Kaan	
Course Coordinator	M. Triggianese	
Contact Hours / Week x/x/x/x	80 hours per Quarter	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	BSc and MSc 1 completed	
Course Contents	<p>AMBITION In Master 2 we focus on Cities. This research and design studio promotes broad speculation, independent thinking, collective work with the aim of positioning architecture into a broader social, cultural, political, and economic context. Through the various themes, students are exposed to the versatile layers of the city, while simultaneously expected to engage their observations with daily studio work. Understanding the hard and soft layers, that actually define the values of a contemporary city, can lead towards ambitions to follow. After forensic analysis of the layers, a new framework will be developed for the project area that will be extracted and developed in detail.</p> <p>EVALUATION Evaluations will be based on the research approach, dedication, commitment, effort and improvement of the team in the investigation of the City (and the project area). Concrete aspects for evaluation are: research work, clarity of the problem statements, originality of the final presentation. Please contact the course coordinator for the specific programme / cities of the semester.</p> <p>Study Goals The student: Has developed the skills in architectural design satisfying both aesthetic and technical/functional requirements. During the trajectory the complexity of the architectural design increases leading to a level fit for architectural practice. During this trajectory, skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology and human sciences. Additionally, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and societies needs, including environmental aspects. During MSc1, 2, 3 & 4 process skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing.</p> <p>Education Method Besides studio program students are expected to fully engage with events and people which the sites have to offer. Workshops, lectures, tours and travels are included in the studio programme.</p> <p>Assessment Midterm presentation including research, argument and concept. Final presentation with posters and research booklet. Additional visualisation tools can be used, such as video, reportage, models.</p> <p>Special Information As part of the Complex Projects objective, the search for definition of city guides the Design and Research studio, 'IN Cities' studio in its most direct way. Please contact the studio coordinator to know this year's case studies.</p> <p>Period of Education Semester</p> <p>Leerstoel Complex Projects, department of Architecture</p> <p>Minimum aantal deelnemers 12</p> <p>Maximum aantal deelnemers 16</p> <p>Course evaluation For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/</p>	

AR2FM010	The Delta Shelter		12
Responsible Instructor	P.A. Koorstra		
Course Coordinator	P.A. Koorstra		
Education Period	3		
	4		
Start Education	3		
Exam Period	none		
Course Language	English		
Expected prior knowledge	BSc and Master 1		
Course Contents	The assignment is to design a small project in a Delta environment; a dynamic and natural surrounding on the border of water and land.		
	The infinity of the location and the constant changing conditions invite to research the meaning of boundaries and the integration of the landscape in the design. The experience of the specific and poetic qualities of this environment will be one of the explicit themes in this course; the contradiction between the human scale and the unrestricted landscape, the influence of wind and tide, the flora and fauna and the position of human within this often vulnerable ambience.		
	The role, impact and contribution of architecture in such places is part of the research in this assignment. More specific the typology and manifestation of the architecture will be discussed and developed on the basis of the design proposals.		
	The ethics and aesthetics of architecture will be discussed regarding questions as; What are the necessary conditions for architecture to give a satisfying contribution to this environment? Is it inevitable that architecture is a disturbing factor, can it only be of temporary presence, or can architecture contribute to the appreciation and preservation of these kind of environments?		
	The project will be developed by using physical scale models, hand sketches and text during all the phases of the design process; the analysis, design and presentation. The aim of this method is to stimulate the creative process by using the physical model and drawing as a feedback and inspiration tool to develop the concept into a design.		
Study Goals	-The student will gain competence is conducting design research and research-by-design by using physical models and hand drawings as a tool throughout the design process.		
	-The student will gain insight in collaborating and communicating by making active use of various scale models to present the design in all its aspects; the architectural composition, materialisation and integration of construction.		
	-The student will be able to communicate his contemplations and reflect on the role and position of the architect in this assignment.		
Education Method	lectures and design studio format. Weekly assistances in groups as well on individual basis.		
Assessment	Assesment on the basis of process, analysis, documentation and (re)presentation of the end result. A brief reflective statement of max 450 words is part of the assesment.		
	Presentation will contain a variety of physical models, drawings, photographs and text.		
	The products should give a clear insight in spatial design, the construction and the relation and meaning of the design towards its environment.		
	The student has achieved a sufficient result on scale 1 to 10 with 6, has the possibility to take a resit with a mark between 5 and 6 and failed with 4,9 or minor. Resit has to be completed within 2 weeks after completion the studio.		
Special Information	coordinator		
Remarks	A site visits can be part of the studio		
Period of Education	Q3 & Q4, 15 weeks, starting in week 3.6		
Leerstoel	Form & Modelling Studies, Architecture		
Minimum aantal deelnemers	12		
Maximum aantal deelnemers	32		

AR2MET010	Transdisciplinary Encounters	12
Responsible Instructor	Dr.ir. P.J. Teerds	
Responsible Instructor	Dr.ir. K.M. Havik	
Course Coordinator	Dr.ir. P.J. Teerds	
Instructor	Dr.ir. P.J. Teerds	
Contact Hours / Week x/x/x/x	4 hours per week	
Education Period	4	
Start Education	4	
Exam Period	none	
Course Language	English	
Course Contents	<p>The field of architecture holds a broad set of research and design methods, but also has the capacity to productively engage with approaches and perspectives from other fields that deal with the built environment such as literature, arts, cinema, philosophy, psychology, and social sciences. In contemporary architectural practice several architects (Steven Holl, Peter Zumthor, Bernard Tschumi, Rem Koolhaas) have used these productive encounters and exchanges with other fields to reorient architectural analysis and design.</p> <p>The Msc2 studio Transdisciplinary Encounters offers a site of exploration for students interested to pursue the possibilities of the encounter between the architectural practice and other disciplines. These may be artistic disciplines, providing instruments such as literary description, narrative, montage and scenario writing, or disciplines from social sciences, providing fieldwork techniques related to social spatial practices and user behaviour. The studio encourages students to develop experimental methods of analysis and design in order to obtain new design solutions.</p> <p>This studio is dedicated to the exploration of a broader scope upon the built environment by using encounters and exchanges with methods from other disciplines. It focuses on the implementation of investigative and creative methods from these fields, particularly focussing on site research and how such new methods and ways of looking can be implemented within the field of architecture.</p> <p>The studio exercise will depart from specific and extensive fieldwork methods, and aims to carry out a site-specific analysis with experimental techniques. Results from the site analysis will be brought to the field of architecture step by step, in order to lead to architectural or urban strategies of intervention.</p>	
Study Goals	<p>the student:</p> <ul style="list-style-type: none"> -becomes acquainted with approaches from other disciplines such as literary, artistic and cinematographic practices, or social science disciplines -learns to conduct field work on site -learns to use and develop experimental methods of analysis and design -implements investigative and creative methods from these fields to conduct site research and develop urban or architectural strategies for a given site 	
Education Method	<p>Combined seminar and studio; in-situ fieldwork. Through experimental in-situ fieldwork the studio will develop tools in order to understand and address the issue of the public realm of a specific city, area or neighbourhood. To do so, during the studio students will adopt and adapt techniques from different other scientific or artistic fields that adjust the profession of architecture, like social geography, anthropology, sociology, and philosophy or sculpture, literature, and cinema. Through these investigations, detailed quantitative and qualitative mappings can be drawn, based on statistical analyses, socio-historical research and in-depth interviews. Depending on the specific approach of the studio, these techniques can be combined with particular drawing techniques such as the section, the softmap and the collage. The site research will thus result in evocative and speculative drawings, models, texts, and films. In a concise presentation the students are requested to evoke their projects and visions on a larger urban scale, as well as to propose site-specific interventions.</p>	
Assessment	<p>For this elective course, the process and the development of appropriate tools for fieldwork and the students reflection upon these methods and the results of the fieldwork will be assessed through mid-term presentations and a final presentation. Criteria are focussing on the consistency of the project: the relation between methods, research findings and urban or architectural strategy.</p> <p>The students are expected to bring their work together in a collective book, thereby showing the broad perspective of site investigations and developed strategies. For the final presentation, representatives from the given site and disciplinary field will be invited as guest critics.</p>	
Elective	Yes	
Tags	Research Methods	
Period of Education	Quarter	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

MSc1 Design Projects

AR1AD011	Dwelling Design Studio: 'The Netherlands'	12
Responsible Instructor	Ir. P.S. van der Putt	
Course Coordinator	Ir. P.S. van der Putt	
Instructor	Ir. P.A.M. Kuitenbrouwer	
Instructor	Ir. O. Klijn	
Contact Hours / Week x/x/x/x	112 hours per semester	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Course Contents	<p>Students of the Dutch Housing Studio design a residential complex in an urban environment in the Netherlands. The design is accompanied/preceded by research into the design assignment and the specific topics of the studio.</p> <p>Each semester the design assignment may be different from the one before. Oftentimes there are two studio options (however, the chair reserves the right to cancel an option if there is a lack of interest from students).</p> <p>Though topics may vary from one semester to the next, at the core of each studio lies the design of dwellings and of the dwelling environment, complemented by research and literature study. Design work is done individually, while some of the research may be performed in teams.</p> <p>Topics of the Studio may include (but are not limited to) the inclusive city, work-live combinations, projects for specific target groups, and small scale interventions. More specific information about the design assignment of the upcoming semester can be found on the website and at the Master-information meetings that take place twice a year.</p> <p>All MSc 1 Dwelling students will take part in a site excursion as well as a workshop or master class revolving around the theme of the studio. The studio is not available for MSc 2 students. MSc 1 students are required to also enrol in Architectural Studies (AR1AD030) and Architectural Reflections (AR1AD040).</p>	
Study Goals	<p>Upon completion of the course the student is able to</p> <ul style="list-style-type: none"> design a sketch version of an urban plan for a given area in terms of massing, program and zoning. design a complex residential building with additional functions, subscribing to the functional demands of the brief and the spatial, structural, technical and aesthetic requirements of architecture. design several dwellings that suit functional demands of their respective target groups. perform research of precedent projects and to demonstrate their impact on his/her own design. develop and compare design alternatives. critically reflect on the assumptions and starting points of the brief. convey his/her design ideas by way of (oral) presentations. critically reflect on his/her own design process. 	
Education Method	Studio: 70 hours Self-study: 266 hours	
Assessment	<p>Presentations will be held throughout the semester; assessment by way of final presentations at the end of the studio. Exact requirements to be announced at the start of the studio.</p> <p>The final grade (F) for AR1AD011 will be a weighted average of the Architecture grade (A) and the Building Technology grade (BT), such that $0,8 \times A + 0,2 \times BT = F$. Both A and BT will be rounded to half or whole points. The final grade will be rounded to one decimal place.</p>	
Special Information	The maximum marking period is 10 working days.	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1AE010	EXTREME architecture	12
Responsible Instructor	Prof.dr.ing. U. Knaack	
Course Coordinator	Ir. R. Schroën	
Contact Hours / Week x/x/x/x	12 hours per week	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Course Contents	<p>The project is about building in a extreme situation, in respect to climate, location and function. Essence is the interaction between the extreme circumstances, the technical solutions, and the architecture. Extreme circumstances do request technical solutions which will be the starting point for the design development. The designer has to direct the 'engineer questions and answers', towards the articulation of the form which is based on integration of aesthetic and technology.</p>	
Study Goals	<p>For this project we will be focussing on the Maldives: a group of atolls which is expected to disappear below the rising sea level. How can we use architecture and engineering to preserve this community?</p>	
	<p>"Die Architektur des 21 Jahrhunderts hat ihre Unschuld verloren, Gebaude müssen etwas leisten" Stefan Behnisch.</p>	
	<p>In the end the student is able to understand technical solutions, to reflect on them, to applicate them and to transform them. And the student is able to design a coherent design result.</p>	
	<p>Upon completion of the MSc1, 2, 3 & 4 studio trajectory the student:</p>	
	<p>Has developed the skills in architectural design satisfying both aesthetic and technical/functional requirements. During the trajectory the complexity of the architectural design increases leading to a level fit for architectural practise.</p>	
	<p>During this trajectory skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology and human sciences.</p>	
	<p>Additionally, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and societys needs, including environmental aspects.</p>	
	<p>During MSc1, 2, 3 & 4 process skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing.</p>	
	<p>Together with the training with regard to aspects of building technology, during the MSc1, 2, 3 & 4 process skills are acquired to incorporate an understanding of the design process with regard to structural design, materialisation of buildings, comfort and climate control.</p>	
	<p>In the end the student is able to design a healthy coherent building in extreme conditions with a focus on technical solutions: the student is able to apply, reflect and transform principles concerning climate, construction and structure.</p>	
Education Method	Design project	
Assessment	The design result including the aspects structure, climate and envelope.	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1AI010	Interiors Buildings Cities MSc 1 Design Project	12
Responsible Instructor	Prof. D.J. Rosbottom	
Course Coordinator	Ir. S. Pietsch	
Instructor	Ir. M.E. Stuhlmacher	
Instructor	Ir. L.M.M. de Wit	
Instructor	M. Pimlott	
Instructor	D.H.G. Somers	
Instructor	Ir. S. Pietsch	
Instructor	Ir. J.S. Zeinstra	
Instructor	Ir. drs. E.P.N. Schreurs	
Instructor	S.S. Mandias	
Instructor	Prof. D.J. Rosbottom	
Contact Hours / Week	4 hours per week	
x/x/x/x		
Education Period	1	
Start Education	2	
Exam Period	3	
Course Language	English	
Summary	<p>The Chair of Interiors Buildings Cities is concerned with making buildings, in places, for people. It conceives of the city, at each scale, as a work of architecture and, hence, the responsibility of the architect. This developing discussion of the chair is contextualised through an annual theme.</p>	
Course Contents	<p>The MSc1 course, The House in the City, considers detailed material and spatial programmes for proto-typical city buildings with the intention of nurturing architectural sensibilities in students that are attuned to context, users, relations, appearances, spaces and interiors, materiality, and construction.</p>	
Study Goals	<p>MSc 1 is structured as a series of parallel studios, run by a dynamic mix of practitioners and academics and collectively concerned with interpretations of a common theme, the House in the City. Understood ambiguously, as in the German Haus, the concerns of the course are not the representative monuments of culture, nor the private houses of individuals. Instead, projects explore those buildings that stand between, housing our collective urban life and oscillating, in our consciousness, between foreground and background. Carefully wrought, spatially rich, generous and adaptable, such buildings have the capacity to evolve over time and to engage in a territory that might encompass both extended domestic and intimate public life. As discrete elements, subservient to a larger whole, they play small but significant roles in structuring urban fabric and defining urban space, simultaneously taking pleasure in the heterogeneity of the contemporary city and bringing it into order.</p> <p>Through individual projects, each studio addresses how such city houses might be made, experienced and inhabited, in time and space and in response to the particularities of place. Through careful drawing and iterative making, their individual characters emerge in a welcoming interior, through a moment of figuration or in the refinement of a façade.</p> <p>The contents of the individual studios will be published at the beginning of the semester. Students are asked to indicate their preference for one of them. Usually the studios include a 2-3-day excursion to a location relevant to the project. The corresponding information will also be communicated at the start of the semester.</p> <p>The MSc1 Design Project (Ar1Ai010) is conceived in conjunction with the Fundamentals course (AR1Ai040). Students are required to enrol to both courses.</p>	
Education Method	<p>Upon completion of the Master 1, 2, 3 & 4 studio trajectory the student:</p> <ul style="list-style-type: none"> - Has developed the skills in architectural design satisfying both aesthetic and technical / functional requirements. During the trajectory the complexity of the architectural design increases leading to a level fit for architectural practice and a training period for professional accreditation as architect. - During this trajectory skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology and human sciences. - Additionally, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and society's needs, including environmental aspects. - During Master 1, 2, 3 & 4 process skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing. - Together with the training with regard to aspects of building technology, during the Master 1, 2, 3 & 4 process skills are acquired to incorporate an understanding of the design process with regard to structural design, materialisation of buildings and interiors, comfort and climate design. <p>A specific description of the aims of the studios will be published in the Studio Manual, to be distributed at the beginning of the course.</p>	
Literature and Study Materials	<p>The design studio features individual and group tutorials, and study specific to the design project as well as several dedicated thematic exercises, internal lectures and seminars that pertain to and inform the subject.</p> <p>A characteristic working method of the Chair is the building of physical models of varying scales in which ideas about the design project are tested and materialized.</p> <p>To be announced upon beginning of the course</p>	
Assessment	<p>The design studio concerns the development of an architectural project on all scale levels, from its urban setting to its materiality and elaboration of its details. The project will be assessed during an intermediate, pre-final and final presentation on its:</p> <ul style="list-style-type: none"> - the position that is formulated with regard to the brief and its context - the appropriateness of the intervention with respect to the assignment - aesthetic and technical / functional qualities - the elaboration throughout the respective scales - the integration of the disciplines included - the quality of the presentation, the products and the argument. - the consistency and coherence and development of the students work during his / her process <p>The products to be assessed include the design proposal represented through drawings, models and text; the project journal and</p>	

	the portfolio.
	The final grade consists of partial grade of 80% for Architecture and 20% for Building Technology. Both grades need to be sufficient for the student to pass.
Special Information	The maximum marking period is 10 work days.
Period of Education	Semester
Leerstoel	Interiors Buildings Cities
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/

AR1AR011	Heritage and Architecture Design Studio: Architectonic Design	12
Responsible Instructor	Ir. W. Willers	
Course Coordinator	Ir. W. Willers	
Instructor	Ir. A.W. Hermkens	
Instructor	Ir. W. Willers	
Contact Hours / Week x/x/x/x	8 hours per week	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Summary	The design assignment focuses on the intervention at existing buildings or ensembles to meet requirements of contemporary and future use. The design process will be guided by exploring design possibilities and architectural consequences of the design.	
Course Contents	<p>The object of this Heritage & Architecture studio is the architectural design for the re-use of a building or building-ensemble to meet requirements of contemporary and future use.</p> <p>A transformation framework will be made by the interpretation of the analysis of the urban context, the building and the program requirements. Various aspects of designing in existing built structures are investigated by studying reference projects and literature.</p> <p>By working on different scale-levels a coherent design will be made. At atelier meetings different aspects like relation existing new, urban context, functionality, spatial quality, technical aspects, material aspects will be discussed.</p> <p>Different presentations will help students to develop their presentation skills.</p> <p>The current debate of transformation and intervention with topics like authenticity, sustainability, layers of history, and so on is very present during this course on every single scale.</p>	
Study Goals	<p>Upon completion of the Master 1 design project the student is able to:</p> <ul style="list-style-type: none"> - interpret cultural values on urban, architectural and technical scale and create a transformation framework, - translate a transformation framework to a design strategy, and a design strategy to an elaborated design, - incorporate aspects in the field of architectural history and architectural theory, art, society's needs, human sciences and environmental aspects. - make a design satisfying functional, aesthetic and technical requirements, - position the project in the discourse, - explain the architectural design during a presentation by combining oral, written and graphic media (e.g., drawings, models) 	
Education Method	Design coaching, 4-8 hours counseling per studio during educational weeks, total 112 hours. Self study: total 224 hours.	
Literature and Study Materials	Will be delivered by the tutor and/or coordinator, or via Brightspace	
Assessment	Research booklet Presentation at the end of the semester	
Special Information	Presence at the first meeting is mandatory. For the assessment the presence during the course and the overall design process will be taken in consideration.	
Period of Education	Semester	
Leerstoel	Heritage & Design	
Minimum aantal deelnemers	12, minimum group 8 students	
Maximum aantal deelnemers	48	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1CP010	Complex Projects Design Studio	12
Responsible Instructor	Prof.ir. C.H.C.F. Kaan	
Course Coordinator	M. Triggianese	
Instructor	Ir. A.T. Richters	
Instructor	S. Filippas	
Contact Hours / Week x/x/x/x	80 hours per semester	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	BSc degree Architecture	
Course Contents	<p>As introduction to Complex Projects, this design studio, 'Landmark', has the ambition to make students familiar with the multiple aspects that define a building. Landmark assignment aims for developing skills in the scientific method of analysis and synthesis. Via anatomical dissection, students learn to identify soft and hard aspects of a building while placing them in the bigger frame of the total composition of the building and its context.</p> <p>The studio promotes broad speculation, independent thinking, collective work with the aim of positioning architecture into a broader social, cultural, political, and economic context. Students will perform a thorough urban research in order to understand the areas history and context, and to identify the Landmarks that could become catalyst for intervention. The research zooms in from the large scale of the city itself, to the medium scale the site, to the small scale of the building. The resulting data has to be organized into a comprehensive research book. This serves as basis for forming a narrative which is leading for the individual redesigns of the Landmark.</p> <p>The seminar AR1CP040 (Anatomy) is fully integrated with the studio. An educational trip / excursion with on-site workshops is part of the studio program. Please contact the studio coordinator to know this year's case studies.</p>	
Study Goals	<p>Upon completion of the MSc1, 2, 3 & 4 studio trajectory the student:</p> <ul style="list-style-type: none"> Has developed the skills in architectural design satisfying both aesthetic and technical/functional requirements. During the trajectory the complexity of the architectural design increases leading to a level fit for architectural practice. During this trajectory, skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology and human sciences. Additionally, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and society's needs, including environmental aspects. During MSc1, 2, 3 & 4 process skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing. Together with the training with regard to aspects of building technology, during the MSc1, 2, 3 & 4 process skills are acquired to incorporate an understanding of the design process with regard to structural design, materialization of buildings, comfort and climate control. 	
Education Method	Tutorials in studio. Research will be done in thematic groups, design is either individual or in groups of max 2 students.	
Reader	Reader (syllabus) with the studio programme, the basic literature and the weekly schedule will be provided prior to start studio	
Assessment	<p>Monthly pin ups showing research, argument and concept.</p> <p>Trial presentation two weeks prior to the final presentation. The overall work has to be finished by then. Final presentation composed of research books (with critical investigations and site-analysis) and design studio book (with design projects) and digital presentation.</p>	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Semester	
Leerstoel	Complex Projects, department of Architecture	
Minimum aantal deelnemers	16	
Maximum aantal deelnemers	32	
Course evaluation	<p>Evaluations will be based on the overall performance within the studio. The students performance will be determined by the quality of his/her work, commitment, teamwork, effort and improvement over the entire course of the semester. Concrete aspects for evaluation are; research work, argument formulation, translation argument into concept, urban plan, architectural design, presentation.</p> <p>For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/</p>	

AR1MET010	Ways of Doing	12
Responsible Instructor	Dr.ir. K.M. Havik	
Course Coordinator	Dr.ir. P.J. Teerds	
Instructor	Dr.ir. P.J. Teerds	
Instructor	Dr.ir. W.W.L.M. Wilms Floet	
Contact Hours / Week x/x/x/x	8 hours per week	
Education Period	1 2	
Start Education	1	
Exam Period	none	
Course Language	English	
Summary	<p>The studio Ways of Doing aims to develop and assess distinct methods that allow for innovative way of analysis, architectural design, and spatial intervention in challenging (post-)industrial regions in the Low Countries. Every semester a different site to work on is chosen. These (post-)industrial areas often are dominated by characteristic constructions and buildings: huge installations, factories, warehouses and offices, some still in use, others empty. Particularly in the post-industrial sites, often social questions and signs of foreclosure dominate both the political and the physical landscape. Cities make redevelopment plans, although often it is quite difficult to find the right program and approach in order to revitalise such areas as the local economy.</p> <p>The aim of education in the Methods & Analysis MSc1 studio is to merge analysis and design extensively, in order to face difficult architectural, spatial, technological, social and political questions that dominate these (post-)industrial landscapes.</p>	
Course Contents	<p>From Otto Wagner to Aldo Rossi and Robert Venturi, architects have always developed new approaches and tools to react to changing urban conditions. The studio Ways of Doing wants to position itself within this architectural tradition and asks: Which toolbox can we cultivate to confront new urban ecologies like (post-)industrial landscapes? Through particular assignments, it aims to develop and assess distinct methods that allow for innovative way of analysis, architectural design, and spatial intervention in the challenging reality of (post-)industrial landscapes in various cities in The Netherlands and Belgium. Each semester another site is chosen to be investigated. These (post-)industrial areas often are dominated by characteristic constructions and buildings: huge installations, factories, warehouses and offices, some still in use, others empty. Particularly in the post-industrial sites, often social questions and signs of foreclosure dominate both the political and the physical landscape. Cities make redevelopment plans, although often it is quite difficult to find the right program and approach in order to revitalise such areas as the local economy. Students investigate the spatial, social and political situation by studying particular themes, like the atmosphere, the infrastructure, public space, as well as by using specific methods of analysis and design, like soft-mapping and drawing sections, or developing narratives or spatial poems. Analysis, in this particular perspective, is extensively part of the design-approach that the student will develop during the studio. Part of this approach also is the choice of location, program and aim of a spatial intervention in the area of study.</p>	
Study Goals	<p>Upon completion of the Master 1, 2, 3 & 4 studio trajectory the student:</p> <ul style="list-style-type: none"> - Has developed the skills in architectural design satisfying both aesthetic and technical / functional requirements. During the trajectory the complexity of the architectural design increases leading to a level fit for architectural practise. - During this trajectory skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology and human sciences. - Additionally, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and societies needs, including environmental aspects. This includes moral decision and argumentation skills regarding architectural ethics, especially when addressing social, political, environmental and technological issues. - During Master 1, 2, 3 & 4 process skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing. - Together with the training with regard to aspects of building technology, during the Master 1, 2, 3 & 4 process skills are acquired to incorporate an understanding of the design process with regard to structural design, materialisation of buildings, comfort and climate control. 	
Education Method	<p>The msc1 studio Ways of Doing takes up the task to investigate new tools and methods to address the challenging paradox of historical presence on the one hand, and large new developments on the other. The studio does so by constantly shifting to different methods, in order to look at the site and the research question from various perspectives, which can vary from strict architectural towards technological, and from spatial to political perspectives.</p> <p>During the course, different methods will be applied: from fieldwork to investigations by means of narrative or sections; from material explorations to the development of sequences of use; by focussing on building-technological aspects or on atmospheric aspects of spaces; from focusing on basic architectural elements such as floor, wall and roof, to articulating structural aspects like repetition and hierarchy.</p> <p>Students will start to work in small groups on distinct research themes the result of these investigation is understood as the share knowledge base that is developed in the studio. Based on these insights, the students either continue to work in groups or work individually on the proposal of a spatial intervention in a location of choice.</p>	
Course Relations	<p>This design studio is accompanied by two theoretical seminars, Architectural Tools (AR1MET030) and The Roles of the Architect (AR1MET040) that respectively investigate the instruments used by architects to develop their plans and ideas, and how these affect the very outcome of the design-process, and explore the various roles architects can take within contemporary practices and society.</p>	
Assessment	<p>The course is assessed through a mid-term review and a final presentation of the project. However, as for this course the process is as important as the final design, the students need to present not only the project, but also substantial intermediate findings. The tutors will assess, during the mid-term review and the final presentation the way students understand and apply different methods offered. Particular attention will be given to the question how the student succeeds in using methods as offered in the studio, and how the student is able to formulate particular design hypothesis based on these exercises. The consistency of the project on a methodological, architectural and technical level is crucial for the final assessment. For the mid-term review as well as for the final presentation, external critics will be invited.</p>	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1TWF010	The Why Factory Design Studio: Design lab I	12
Responsible Instructor	Prof.ir. W.G.M. Maas	
Responsible Instructor	F.M. Madrazo Salazar	
Course Coordinator	J. Arpa Fernandez	
Instructor	F.M. Madrazo Salazar	
Instructor	Prof.ir. W.G.M. Maas	
Co-responsible for assignments	S. Gargaretas	
Contact Hours / Week x/x/x/x	6 hours per week	
Education Period	1 2	
Start Education	1	
Exam Period	none	
Course Language	English	
Course Contents	<p>This course is a MSc1 studio, and is organized as a think tank. Studios at The Why Factory are content-driven design and research studios with a practical and theoretical scope. MSc1 studios are research labs and platforms that aim to analyse, theorize and construct future cities. They conduct a variety of investigations within the given world, and produce future scenarios beyond it: from universal to specific and global to local.</p> <p>MSc1 studios start with a specific brief and a statement on the future of urban life. Based on the brief, future scenarios will be developed leading to visionary, city-related designs.</p> <p>Students develop their specific approach to the brief and define the necessary scientific research. Calculations, simulations or modelling to support the studio work are elaborated in a parallel seminar: the Future Models seminar.</p> <p>The results of the research lead to a design project with consequent logic, convincing argumentation and illustrative and fantastic visuals.</p>	
Study Goals	<p>Upon completion of the Master 1, 2, 3 & 4 studio trajectory, the student:</p> <ul style="list-style-type: none"> - Has developed the necessary skills in architectural design that satisfy programmatic, aesthetic and technical requirements. During the Masters trajectory, the complexity of the architectural design increases, leading to the level required for professional practice. - During this period, skills are acquired to increasingly incorporate an understanding of design processes, architectural history and theory, art, technology and human sciences. - Additionally, skills are acquired to incorporate into design an understanding of the relation between buildings, spaces and society's needs, including environmental aspects. - During Master 1, 2, 3 & 4, skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing. - Together with the building technology training, during Master 1, 2, 3 & 4 skills are acquired to incorporate an understanding of the design process with regard to structural design, materialisation of buildings, comfort and climate control. 	
Education Method	Atelier: 150 hours	
	Self study: 270 hours	
Course Relations	<p>MSc1 studios are linked to two other courses of The Why Factory: the Actualities Workshop (AR1TWF020) and the Future Models seminar (AR1TWF030).</p>	
	<p>Students who join the MSc1 design studio AR1TWF010 as core course must join AR1TWF020 and AR1TWF030 as well.</p>	
	<p>Students who join the design studio AR1TWF010 as an optional MSc2 studio are not obliged to join AR1TWF020 and AR1TWF030. However, we advise students to join the Future Models seminar AR1TWF030, as it may be helpful for the content of the design studio.</p>	
Assessment	Presentation	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

MSc 3 AI

AR3A160	Lecture Series Research Methods	6
Responsible Instructor	Dr.ir. P.J. Teerds	
Responsible Instructor	Dr.ir. K.M. Havik	
Course Coordinator	Dr.ir. P.J. Teerds	
Instructor	Dipl.ing. R.A. Gorny	
Instructor	M.F. Berkers	
Contact Hours / Week x/x/x/x	28 hours per quarter	
Education Period	1 3	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	General Master 2 level of knowledge.	
Course Contents	<p>The lecture series will allow MSc 3 students from all the departments and chairs of our Faculty to reflect on and explore a series of methodological approaches, which should strengthen their architectural positions in the graduation studio, towards the conclusion of their formative process and the consequent obtainment of the corresponding degree.</p>	
Study Goals	<p>Students involved in this course are expected to operate at a final year Masters level, meaning they are responsible for performing critically within the series of concepts presented in the course; as well as individually fulfilling course requirements such as being acknowledged with the basics of scientific writing, formulating hypotheses and investigating at a level equivalent to their standing within the curricular track.</p> <p>This lecture series will address scientific integrity to make sure that architecture students develop the necessary skills for integer research approaches while being aware of the societal, political, physical and environmental impacts their research and design work has.</p> <p>The lecture series aims to:</p> <ul style="list-style-type: none"> - Take advantage of the magnitude and diversity of the series. The line-up of lecturers, paired to the differences among the academic tracks followed by students from several chairs and departments, should substantially enhance each discussion, and promote creative approaches to each of the topics discussed. - Endow the students with clear knowledge of the heuristic nature of their work. The central thesis of the course is that all architectural activity is an exploration within identifiable disciplinary fields of experimentation, based on equally identifiable epistememes. Awareness of that explorative/cognitive capacity of architecture we sustain is a crucial element in the formation of an architect. - Present the students with a selection of relevant and progressive architectural methodologies and analytical strategies that are currently being used and discussed within the A+BE academic community and in other outstanding educational institutions. - Invite students to become engaged in these discussions actively, in order for their graduation processes to constitute real contributions to the professional debate that feeds our Faculty. It is expected that, with the information provided in this course, each graduation process aims to produce additional architectural knowledge in the face of established and ongoing research programs. - Focus on moral sensibility, analysis, creativity, judgment, and skills regarding architectural ethics when developing specific expertise. 	
Education Method	<p>The course comprises two, parallel activities: A series of lectures and the preparation of a position paper. The lecture series is made up of seven sessions. Six have defined topics, the first is introductory. Each lecture session includes a 30+ min. presentation by a lecturer, a 30+ min presentation by a group of students, and a 30+ minute series of Q&A, presented to both lecturer and students. Each guest lecturer is responsible for submitting on the fore a reference text for students to prepare the session, and a paper of her authorship that exposes, summarizes or complements her presentation. Both documents will be made available to the whole group of students with sufficient anticipation.</p> <p>A group of students will be responsible for preparing each lecture. These groups will be formed during the course intro, and will divide themselves into a subgroup in charge of presenting the topic, and other subgroups in charge of preparing a series of debate topics and questions, for the closing discussion.</p> <p>The whole group of students in charge of preparing each session will participate in a workshop, in which they will be guided in the development of their presentation and the construction of different positions within the chosen topic, looking forward to the debate. These workshops will take place on Monday mornings, and will be tutored by the coordinators of the lecture series and/or staff from the chair of Methods and Analysis.</p> <p>Before entering each lecture session, the group of presenting/debating students will hand in a paper of their authorship (2000 words, aprox.) that exposes, summarizes or complements their presentation, the images that accompany their talk, the questions and debate topics developed to feed the debate, and any other addenda they consider necessary to support their understanding of the topic.</p>	
Literature and Study Materials	A reader will be distributed via Blackboard/Brightspace	
Assessment	<p>Each student is responsible to elaborate on her own reflections regarding the course, the debates, the literature that will be provided and suggested, and her own graduation process, by producing an individual position paper (aprox. 2000 2500 words), following scientific standards of writing and structuring her topics (acknowledging a state of the art for a particular discussion, for example) towards the construction of a methodological apparatus in affinity with her own intentions and inclinations.</p> <p>Upon request, specific tutoring/workshops for this second component are available, in the same group format utilized for the preparation of the sessions.</p> <p>In order to attend one of these tutorials, interested students must submit a full draft of their essay, including their name, student number and current chair/graduation studio. The submission deadline for this draft will be specified at the beginning of the period.</p> <p>The course coordination will group the drafts and submit them to available tutors, by topic affinity. These tutors will read the drafts and subsequently organize a workshop with small groups of students. The aim of these workshops are to clarify doubts, elaborate on formal and stylistic concepts, and contribute thematically to the development of the final versions of the papers.</p> <p>The fact that extra tutoring is available does not mean that the students are not encouraged to also seek additional support from their teachers in the other courses that constitute the graduation track.</p> <p>Position papers are expected to be approximately 2000 2500 words in length, and should comply with academic and scientific standards in terms of form and style.</p> <p>The fundamental aim of this assignment is to enable students to formulate a sound and consistent architectural position, in the</p>	

face of the broader discussions presented as a partial state of the art of professional discussion, both within our Faculty and in contemporary architecture culture.

Articulating a position requires knowledge and understanding of a diverse array of postures, which are carefully considered in response to the problems of our time. Getting acquainted with diverse sources, authors and architectural examples; articulating the information contained in these sources; abstracting and operating with the useful and/or relevant ideas they represent; and (hopefully) further elaborating them into progressive architectural models; are all goals of this exercise.

It is assumed that the reflections generated during the course, and the resulting position paper, are active components of the broader exploration that is the graduation project. Research, reflection, discursive elaboration and historical contextualization are fundamental parts of a complete architectural intervention, meant to perform in site- and cultural-specific conditions, but also in the broader intellectual framework that is the architecture of our time.

In this sense, reflections should elaborate on the central concepts, methods and tools employed in the development of the architectural explorations leading to the Masters degree, at a level that transcends the simple description of steps taken in the elaboration of a project.

Cases of plagiarism will be dealt with according to standard procedures established by the corresponding authorities within the University.

Special Information

Each period will include a normal deadline for the presentation of the final position papers. Papers handed in within this deadline will be graded normally.

An extra hand-in moment will be offered for late papers, around the middle of the following academic period. Papers presented for this extra hand-in moment will only be evaluated in terms of pass (6,0/10,0) and fail (5,0/10,0 and under).

Remarks

Position papers will be evaluated on the following items:

- Has a question been clearly defined?
- Has the question been developed beyond its initial formulation?
- Does the paper acknowledge a state of the art, regarding this question?
- Has a position been taken, in relation to this state of the art?
- Is the paper coherent/concise?
- Does the paper follow a clear methodology?
- Are the sources pertinent, and well used?
- Is the language adequate?

Period of Education

Lectures take place during the first quarter of the period.

The second quarter of the period is used for the production of final position papers.

Individualized tutoring is offered upon request, to students who require extra help in the process of writing their papersk, during this second quarter.

Course evaluation

The course will be graded on the basis of a final, position paper, worth 100% of the grade assignable to the Lecture Series. This position paper is expected to range between 2000-2500 words, and must be submitted before a specified deadline.

Only papers accepted and graded with a mark above 5,0/10,0 will be eligible for re-takes or further corrections.

Close attention must be paid to the fact that a passing grade in this course is necessary to apply for a Studio P4 presentation. Please note that the deadline for the presentation of these papers is indicated since the very beginning of the semester. This should allow you to plan the development of your essay without interfering with other deadlines. Conflicts with other courses should be negotiated with the Board of Examiners.

AR3AI045	Interiors Buildings Cities MSc 3 Graduation Studio	15
Responsible Instructor	Prof. D.J. Rosbottom	
Course Coordinator	S.S. Mandias	
Contact Hours / Week x/x/x/x	8 hours per week	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	2 4	
Course Language	English	
Summary	The Interiors Buildings Cities Graduation Studio explores the theme of the Urban Institution; its representative, spatial, social and political roles and its impact on the life and form of the city at each scale, from the interior outwards.	
Course Contents	<p>The graduation studio is concerned with urban institutions, investigating not only their particular programmatic and cultural situations, but also their broader responsibilities to, and engagement with, the city and its citizens. The very term is a politically and culturally charged one. As part of an on-going discourse on the subject within the Chair, individual projects will critique the role of the institution within contemporary culture and society. Studios will reflect upon how the contemporary institution might take its place within the city: materialising and embodying an ethical culture of openness and permeability within its public interiors, through its representative forms and in its structuring of urban space. This developing discussion is contextualised through an annual theme, which previously included The City as an Archive (2016-2017) and the Festive City (2017-2018), and in the academic year 2018-2019 is the Intimate City.</p> <p>This semester includes two related courses. The Studio Specific Research I (AR3AI050) examines the physical and cultural contexts suggested by the theme of the graduation studio, with a particular focus on users and social phenomena. Studio Specific Research II (AR3AI055) focuses on the architectural object and its various effects, affects and agencies, examined through the study of precedents.</p>	
Study Goals	<p>Upon completion of the Master 1, 2, 3 & 4 studio trajectory the student:</p> <ul style="list-style-type: none"> - Has developed the skills in architectural design satisfying both aesthetic and technical / functional requirements. During the trajectory the complexity of the architectural design increases leading to a level fit for architectural practice and a training period for professional accreditation as architect. - During this trajectory skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology and human sciences. - Additionally, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and society's needs, including environmental aspects. - During Master 1, 2, 3 & 4 process skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing. - Together with the training with regard to aspects of building technology, during the Master 1, 2, 3 & 4 process skills are acquired to incorporate an understanding of the design process with regard to structural design, materialisation of buildings and interiors, comfort and climate design. 	
Education Method	<p>The graduation report demonstrates the student's ability to employ moral sensibility, analysis, creativity, judgment, decision and argumentation skills regarding Architectural ethics and his/her future role as architect. The individual graduation report should not only contain an elaboration regarding the Graduation Projects societal and disciplinary relevance, but has to also address design ethics and the way in which intercultural issues were addressed in the graduation project.</p>	
Literature and Study Materials	<p>The object of the course is the formulation of a design project for an urban institution on a representative site. This is achieved in a series of stages, ranging from thematic studies to analyses of relevant models, through to project proposals with a significant level of definition. This includes:</p> <ol style="list-style-type: none"> 1. Workshops in analysis of local urban contexts, characteristics particular to the public interior, programme, precedents and use. 2. research and design supervision in studio, in groups and for individuals. 3. preliminary design development guided by individual tutorials, studio presentations and critique. <p>A characteristic working method of the Chair is the building of physical models of varying scales in which ideas about the design project are tested and materialised.</p>	
Assessment	As defined by studio tutors in relation to the specific design theme.	
Assessment	<p>The assessment will be based on:</p> <ul style="list-style-type: none"> - The visual and oral presentation of the design proposal in explanatory diagrams, plans, sections, elevations, perspective views and models - The project as described through the project journal, portfolio and project reader <p>The assessment criteria will be communicated at the start of the semester in the Studio Manual.</p>	
Enrolment / Application	<p>You can enroll for this course during the pre-enrolment period. Students who did not enroll for this studio during the pre-enrolment period can enroll for this studio, as long as there are places left. In the autumn semester we usually offer two graduation studios under this coursecode. In that case we ask you upon enrolling to send an email to InteriorArchitecture-BK@tudelft.nl stating your preferred studio.</p>	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Semester	
Leerstoel	Interiors Buildings Cities	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR3AI050	Interiors Buildings Cities MSc 3 Studio Specific Research 1	3
Responsible Instructor	Prof. D.J. Rosbottom	
Course Coordinator	S.S. Mandias	
Instructor	S.S. Mandias	
Contact Hours / Week x/x/x/x	4 hours per week	
Education Period	1	
	2	
	3	
	4	
Start Education	1	
	3	
Exam Period	2	
	4	
Course Language	English	
Course Contents	<p>The intention of the course is to examine the various physical and cultural contexts suggested by the theme of the graduation studio (AR3AI045), with a particular focus on users and social phenomena. Conditions in the field, literature, and other media which collectively illuminate those realities and associated will be examined, through the interpretive, reflective and critical actions of writing and making. This is an extension of methods introduced in the MSc1 Fundamentals course of the Interiors Buildings Cities chair. Consistent with that course is the purpose to nurture observation and deep inquiry into interiors, buildings and cities as cultural artefacts, thereby heightening orders of attention through which meanings become available for the imagination, for transformation, for use, and for re-presentation. The research tradition of the Chair is centred on the interpretation of the architectural object and its culturally embedded narratives. Students ideas will be stimulated and challenged by fieldwork, in which study is undertaken on the social and cultural environments of architecture, and its situation within broader cultural contexts. The course is a research studio for exploration, which, by relating architectural design to those who use architecture and who are affected by it, aims to awaken a curious, reflective and critically engaged attitude towards the city as a complex political and everyday realm of reflection and intervention, at all scales. The course is integrated with the programme of the graduation design studio, complementing, interacting with and informing the work within it, from the study of precedents, to the contexts and considerations of design, to the architectural project itself.</p>	
Study Goals	<p>Through the undertaking of writing and making tasks, defined through briefing, and their subsequent presentation, the student should be able to demonstrate:</p> <ul style="list-style-type: none"> - a critical understanding of the social and cultural implications of the design assignment; - an analytical approach of everyday social and cultural phenomena in the public domain; - appropriate knowledge of the stages of the research process in relation to general and applied research; - appropriate knowledge of the ethics of academic writing and social research - appropriate knowledge of the applicability of qualitative and quantitative research methods in relation to particular circumstances; - the ability to translate and present research findings through academic writing (papers and reports), and visual and physical means; - an understanding of the ways in which the outcomes of research can inform the design process and vice versa. 	
Education Method	<p>The student should be able to develop methods of individual research appropriate and specific to their investigations, and that these methods are used to act as a foundation for the pursuit of their architectural design project.</p> <p>In essence, the education method is Learning by doing, involving the student in every stage of the research process. It entails engaging the students in critical debates on the information presented, stimulating analytical thinking in response to everyday social phenomena, through an iterative process of dialogue and feedback.</p> <p>A set of specific studies will be devised that are pertinent to each students developing position, both with regard to the implications of the theme of the design studio and the possible architectural project. In addition to fieldwork focusing on understanding of relevant phenomena and users, using techniques associated with visual anthropology, there will be reviews of literature pertinent to the subject of the studio and its implied manifestations within culture (contemporary and historical). This will provide the basis for a critical and reflective text written by each student, in which the development of understanding of conditions, contexts and ideas will be central. The text will complement and situate visual research and representations and will furthermore serve to reflect and expand upon issues central to the design project and the students developing critical position.</p> <p>Pertinent discourse and means of investigation will be developed by the student in agreement with the tutor responsible for the course, through regular discussions and presentations. It is desired that the process students undertake is simultaneously explorative and reflective. The course will be in interaction with the design studio, particularly in the first weeks. Thereafter, a form or forms for reflections upon fieldwork, literature and position will be developed by individual students for presentation.</p>	
Literature and Study Materials	Literature and other material as defined by tutors in relation to the specific theme of the design studio.	
Assessment	<p>A critical review of all relevant studies, text(s) and their presentation is pursued and concluded by the end of the first quarter of the academic year. Assessment will be made in relation to the study goals on the basis of work that appropriately responds to the brief, as agreed with the tutor, and whose form is pertinent to its subject. A reflective text will form part of the content to be assessed. Note that passing or failing the course is independent of the P2 of the graduation design studio.</p>	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Semester	
Leerstoel	Interiors Buildings Cities	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR3AI055	Interiors Buildings Cities MSc 3 Studio Specific Research 2	6
Responsible Instructor	Drs. I.G. Cieraad	
Responsible Instructor	M. Pimlott	
Course Coordinator	S.S. Mandias	
Contact Hours / Week x/x/x/x	4 hours per week (7 weeks)	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	2 4	
Course Language	English	
Course Contents	<p>The focus of the course is the architectural object and its various effects, affects and agencies. These are examined through the study of precedents, the conditions in which these precedents have been produced and continue to perform, and the ways in which they address the people who use them, engage with them and are affected by them. These precedents appear within contexts: of culture, of ideas, and of environments, and will be discussed in relation to the understanding of not only the architectural object, but also the themes of the graduation studio (AR3AI045).</p>	
Study Goals	<p>The research tradition of the Chair is centred on the interpretation of the architectural object and its culturally embedded narratives, and the course extends methods introduced in the MSc1 Fundamentals course pertaining to architectural precedents, their contexts and their appearances within cultural discourse. Consistent with that course is the purpose to nurture observation and deep enquiry of interiors, buildings and cities as cultural artefacts; establishing heightened orders of attention through which meanings become available for the imagination, for transformation, for use, and for re-presentation. The course is fully integrated with the programme of the graduation studio, with relevant studies pursued in the first quarter of the academic year, and concluded, in the form of individual and collective documents, as appropriate to the given brief, at the end of the second quarter.</p> <p>Through the undertaking of writing and making tasks, defined through briefing, and their subsequent presentation, the student should be able to demonstrate:</p> <ul style="list-style-type: none"> - adequate knowledge of the history and theories, architectural research methods and design instruments pertaining to exemplars at the scale of the city, the building or the interior, also in regard to technology and notions derived from human sciences. - understanding and skills with regard to the means of investigation, including the relations between people and the physical environment. - an ability to distinguish between and apply a variety of research methods, in order to inform the design process of an architectural project. 	
Education Method	<p>A series of studies that focus on a relevant range of architectural and urban precedents pertinent to the studio theme. These may be made by individuals or small groups, who will present their investigations to the studio on a weekly basis. After discussion and critique, these various forms of these investigations will be developed in substance and through documents that at once substantiate the breadth of the studios thematic exploration, and serve as foundations and points of reference for students individual design proposals. Reflective texts will play a role in placing investigative work in various contexts: cultural, architectural and those related to the experiencing subject. These documents will be gathered together in a single overall presentation at the end of the semester, complementing the presentation of individual architectural proposals in the P2 assessment.</p>	
Literature and Study Materials	Precedents, conditions and literature set by studio tutors.	
Assessment	<p>Assessment will be made in relation to the study goals, on the basis of work that appropriately responds to the given brief. It will include analysis of precedent documentation, assessed per group or individual, dependent upon the format of analysis. Assessment of the course will take place at the end of the semester, and will be specific to the elements required by the brief, presented in a documentary form. The grade will be determined by the tutor responsible for the course in collaboration with the mentors of the graduation studio.</p>	
Period of Education	Semester	
Leerstoel	Interiors Buildings Cities	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

MSc 4 AI

AR4AI120	Interiors Buildings Cities MSc 4 Graduation Project	30
Responsible Instructor	Prof. D.J. Rosbottom	
Course Coordinator	S.S. Mandias	
Contact Hours / Week x/x/x/x	8 hours per week	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Summary	The individual design project as defined by the MSc3 design proposal, will be developed and refined in the context of detailed considerations of all aspects of project design, including issues of project organization and building and environmental technology.	
Course Contents	The course in design, as complemented by courses and studio exercises in theory, analysis and field research in MSc3, together with the design project and its technological development in MSc4, combine to form a rounded project suitable for students to profile themselves in practice. The graduation studio is oriented toward the making of an individual project in significant detail, with studies from a common research framework as its basis. The course is supported by instruction, guidance and consultation in relevant fields of building technology, material technology, environmental and climate design and technologies.	
Study Goals	<p>Upon completion of the Master 1, 2, 3 & 4 studio trajectory the student:</p> <ul style="list-style-type: none"> - Has developed the skills in architectural design satisfying both aesthetic and technical / functional requirements. During the trajectory the complexity of the architectural design increases leading to a level fit for architectural practice and a training period for professional accreditation as architect. - During this trajectory skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology and human sciences. - Additionally, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and society's needs, including environmental aspects. - During Master 1, 2, 3 & 4 process skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing. - Together with the training with regard to aspects of building technology, during the Master 1, 2, 3 & 4 process skills are acquired to incorporate an understanding of the design process with regard to structural design, materialisation of buildings and interiors, comfort and climate design. 	
Education Method	The graduation report demonstrates the student's ability to employ moral sensibility, analysis, creativity, judgment, decision and argumentation skills regarding Architectural ethics and his/her future role as architect. The individual graduation report should not only contain an elaboration regarding the Graduation Projects societal and disciplinary relevance, but has to also address design ethics and the way in which intercultural issues were addressed in the graduation project.	
Literature and Study Materials	Architectural design specific to the building and its interior, material studies, lighting, environmental and climate design, and technology development guided through individual tutorials and critique, with studio presentations.	
Assessment	<p>As defined by studio tutors in relation to the specific design theme.</p> <p>The assessment will be based on:</p> <ul style="list-style-type: none"> - The visual and oral presentation of the design proposal in explanatory diagrams, plans, sections, elevations, perspective views and models - The project as described through the project journal, portfolio and project reader <p>The assessment criteria will be communicated at the start of the project in the Studio Manual.</p>	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Semester	
Leerstoel	Interiors Buildings Cities	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

The Why Factory

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

MSc 1, The Why Factory

AR1A060	Delft Lectures on Architectural Design	3
Responsible Instructor	Dr.ir. S. Komossa	
Course Coordinator	Dr.ir. E.H. Gramsbergen	
Instructor	Dr.ir. E.H. Gramsbergen	
Instructor	Dr.ir. P.J. Teerds	
Instructor	Ir. L.G.K. Spoormans	
Instructor	Dr.ir. B.M. Jurgenhake	
Instructor	Ir. M.J. Smit	
Contact Hours / Week	2 hours per week	
x/x/x/x		
Education Period	1	
Start Education	3	
Exam Period	1	
Course Language	2	
Course Contents	3	
Study Goals	4	
Education Method	English	
Assessment	<p>The Delft Lectures on Architecture Design highlights current issues of the architecture discipline against the background of the larger societal conditions that have an inevitable impact on the practice of design. Contemporary positions in architecture practice and theory will be discussed. Full professors, associate professors and researchers of the Delft Faculty of Architecture will address key contemporary topics, and investigate historical models and theoretical arguments while discussing the latest architecture projects as well as seminal cases.</p> <p>Key questions concern:</p> <ul style="list-style-type: none"> - where do architects stand and what can they do? - which positions and practices are developed by architects? - what strategies and approaches were and are relevant? <p>After completion of the course:</p> <p>Building on the architectural design courses of the Bachelor, the student has gained knowledge of relevant issues of the discipline of architectural design, practice and its body of knowledge, including the main theoretical concepts and models. The student is able to reflect critically on ethical positions taken by lecturers and expressed by their practises.</p> <p>The student:</p> <ul style="list-style-type: none"> - Has appropriate knowledge of the main issues of the discipline of architectural design, practice and its body of knowledge, including the main theoretical concepts and models. - Is aware of the larger historical development of the discipline of architectural design in relation to the main theoretical concepts and models deployed of architecture, art and technology, their application in specific cases as presented in the lecture series addressing current issues of architectural practice and society. - Is able to interpret the architectural design production, both historically and current, in terms of the concepts and models of design as discussed in the lecture series; this includes the larger context of the manifold relations between architecture, the city and society and the relations between design concepts, building production and materialization. 	
Special Information	Double lectures (2 x 45 minutes) by full professors, associate professors and researchers of the department of Architecture and other faculty members. Lectures are concentrated in the first half of the semester, during 7 weeks. Generally, the double lectures start with introducing the 'issue', after which the 'architectural positions' are discussed. The lecture coordinators are present to introduce the speakers and the topic, and to moderate questions from the students.	
Period of Education	The format of the examination is a digital exam with a duration of three hours, which means the examination is taken place in a specifically equipped examination hall on the campus. The maximum marking period is 10 work days.	
Course evaluation	The maximum marking period is 10 work days.	
Course evaluation	Quarter	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1A065	Delft Lectures on Architectural History	3
Responsible Instructor	Prof.dr.ing. C.M. Hein	
Responsible Instructor	Dr. H.D. van Bergeijk	
Course Coordinator	Dr. H.D. van Bergeijk	
Contact Hours / Week x/x/x/x	X/X/X/X	
Education Period	2	
	4	
Start Education	2	
	4	
Exam Period	2	
	3	
	4	
	5	
Course Language	English	
Course Contents	<p>This course provides a deepening of a particular part of the knowledge that the student has gained in the earlier stages of his curriculum. It consists of a lecture series of Capita Selecta dealing with the modern architectural production from 1850 till about 1940. This year the course will focus especially on the birth of modernism in the periode from the beginning of World War I till the collapse of the stock market in 1929. De Stijl-artists and the Bauhaus will be the core of the course but also figures like Dudok, Stam and others will receive due attention. We will try to explore how the abolition of history led to a new concept of society and the underlying concepts of civitas. A belief in the machine produced also a new ethics that will have an influence on the development of society in the 20th and 21st century.</p>	
Study Goals	<p>The student</p> <ul style="list-style-type: none"> - has acquired a sufficient framework to place and value different contributions to the history of the discipline and society in general. - has gained insights on a specific theme and has deepened his knowledge - has an understanding of some of the tools of the architect from a historical point of view. - knows how to apply certain terms and is critical to their meaning - can relate to the work of architectural historians - is capable of giving a motivated and well-argued answer to the questions - has an idea of the importance of the ethical position of the architect and critic in relation to certain important issues 	
Education Method	Lectures	
	Readings	
Literature and Study Materials	All students should read:	
	- Michael White, De Stijl and Dutch Modernism (Manchester University Press).	
	Further readings will, if necessary, be provided through Blackboard.	
Assessment	Exam with essay questions in which the students exposes his knowledge. The student can choose from the questions. The answer to an essay question should be given in about 500 words. The knowledge that the students shows should be related to his readings and the ideas that he has formed during the course. Students are expected to challenge themselves.	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1A075	Delft Seminars on Building Technology	6
Responsible Instructor	Prof.ir. M.F. Asselbergs	
Responsible Instructor	Ir. B. Gremmen	
Course Coordinator	Ir. B. Gremmen	
Contact Hours / Week x/x/x/x	40 hours per quarter	
Education Period	1 3	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	We expect that you followed the bachelor in Delft or a similar education elsewhere in the world. You have gained knowledge and practices in the next topics:	
	<ol style="list-style-type: none"> 1. constructional and structural detailing (1:20/5/2/1) 2. Structures/constructions in steel, wood and concrete 3. Climate issues, ventilation, heating and cooling 	
	Literature list for International students, master Architecture We take the content of these books as read before participating.	
	<p>Components and connections Author: Meijs, Maarten Contributor: Knaack, Ulrich Publisher: Birkhäuser Publish date: 2009 Document type: book ISBN: 978-3-7643-8669-6 Subtitle: principles of construction Classification: UJA / Building structures: general Chapters all</p>	
	<p>Building construction illustrated Author Ching, Francis D.K Publisher Wiley Publish date 2008 Document type book ISBN 978-0-470-08781-7 Edition 4th ed. Chapters all</p>	
	<p>Structures Author Schodek, Daniel L. Publisher Pearson/Prentice Hall Publish date 2008 Document type book ISBN 0-13-178939-2 Edition 6th ed. Chapters 1,2,3,4,6,7,9,10,13,14,15,16,</p>	
	<p>Climate and Architecture Author Dahl, Torben Publisher Routledge Publish date 2010 Document type book ISBN 978-0-415-56308-6 Edition 1th ed. Chapters all</p>	
	<p>Building Physics Author Linden, A.C. van der Publisher Thiemeleuhenhoff Publish date 2013 Document type book ISBN 978-9006-95155-4 Edition 1th ed Chapters all</p>	
Course Contents	In this course you will make a new technical design for a selected fragment of a case study building or a fragment. In two posters (A0) you will present your new design in technical drawings 1:20 and 1:5/1. Next you will explain the structural design, climate design and facade design in informative diagrams, illustrated with photographs and sketches.	
Study Goals	The student:	
	<ol style="list-style-type: none"> 1. Is able to use research skills in technological design issues and is able to formulate an accurate guiding theme or position, that guides the design process 2. Is able to recognize technical design problems and is able to select -in a substantiate manner- the best solution from a series of (self) formulated possible design alternatives 3. Is able to interpret and integrate the aspects of structure design, construction (facade) design and climate design in a design of a building 4. Is able to provide innovative design solutions especially with regard to the use of energy and providing comfort in building design 5. Is capable of drawing and presenting architectural and technical aspects of a design in a coherent and clear manner 	
Education Method	work groups (seminars)	
Books	<ul style="list-style-type: none"> - Millais, M., 'Building structures, a conceptual approach', London, 1999 - Jones, B., Peter, 'Modern Architecture Through Case Studies', Oxford, 2002 - Daniels, 'Advanced Building Systems, a technical guide for architects and engineers', Basel, 2003 - Frampton, 'Studies in Tectonic Cultures', The MIT Press, 1995 - Ronner, Kolliker, Rysler, 'Baustuktur', Basel, 1995 - Schittich, C., 'In detail: building skins: concepts, layers, materials Basel', Basel, 2001 - Watts, A., 'Modern Construction Handbook', Wien, 2001 - Watts, A., 'Modern Construction Facades', Wien, 2005 	

<p>Assessment</p>	<p>- Bachman, L.R., 'Integrated Buildings', Hoboken Wiley, 2003 - Cook, P., Primer, 'Emancipation of Structure', London, 1996 - Deplazes, D., 'Architektur Konstruieren', Basel, 2005 - Addis, B., 'Building, 3000 years of Design Engineering and Construction', London, 2007</p> <p>The examination will take place in the form of a poster (pin-up) presentation in the studio spaces. Examination will only take place during the final presentations of the course. The date of the final presentation will be announced in the seminar handout. You will receive a mark between 1 and 10 with the following meaning:</p> <p>10 Excellent 9 Very good 8 Good 7 Quite sufficient work 6 Sufficient</p> <p>5,5 Almost sufficient, can be corrected with a repair task without tutoring. Only minor deficiencies can be fixed as a repair task, decided by the tutor. Must be finished within two weeks after the final presentation. Second repair is not possible. Your work will be marked with an V.If the repair does not higher the grade up to V you will have to redo the course.</p> <p>in the case of a delayed evaluation (by request of the study counsellar), the figure will be a maximum of 6.</p> <p>5 and lower, Unsufficient, you have to redo the course next semester</p> <p>NV in case you did not finish the course</p>
<p>Special Information</p> <p>Period of Education</p> <p>Concept Schedule</p>	<p>The maximum marking period is 10 work days.</p> <p>Quarter</p> <p>Q1: In the weeks 1.1 up to and including week 1.6 of the 1st quarter you need to reserve in time Q3: In the weeks 3.1 up to and including week 3.5 of the 3rd quarter you need to reserve in time</p> <p>Tutoring: 40 hours Independent study: 128 hours</p> <p>Seminars will take place on Tuesdays and Fridays, mornings or afternoon. Final presentation will take place on the Friday of the week 1.6 (Q1) and 3.5 (Q3)</p>
<p>Leerstoel</p> <p>Course evaluation</p>	<p>Architectural Engineering</p> <p>For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/</p>

AR1TWF010	The Why Factory Design Studio: Design lab I	12
Responsible Instructor	Prof.ir. W.G.M. Maas	
Responsible Instructor	F.M. Madrazo Salazar	
Course Coordinator	J. Arpa Fernandez	
Instructor	F.M. Madrazo Salazar	
Instructor	Prof.ir. W.G.M. Maas	
Co-responsible for assignments	S. Gargaretas	
Contact Hours / Week x/x/x/x	6 hours per week	
Education Period	1 2	
Start Education	1	
Exam Period	none	
Course Language	English	
Course Contents	<p>This course is a MSc1 studio, and is organized as a think tank. Studios at The Why Factory are content-driven design and research studios with a practical and theoretical scope. MSc1 studios are research labs and platforms that aim to analyse, theorize and construct future cities. They conduct a variety of investigations within the given world, and produce future scenarios beyond it: from universal to specific and global to local.</p> <p>MSc1 studios start with a specific brief and a statement on the future of urban life. Based on the brief, future scenarios will be developed leading to visionary, city-related designs.</p> <p>Students develop their specific approach to the brief and define the necessary scientific research. Calculations, simulations or modelling to support the studio work are elaborated in a parallel seminar: the Future Models seminar.</p> <p>The results of the research lead to a design project with consequent logic, convincing argumentation and illustrative and fantastic visuals.</p>	
Study Goals	<p>Upon completion of the Master 1, 2, 3 & 4 studio trajectory, the student:</p> <ul style="list-style-type: none"> - Has developed the necessary skills in architectural design that satisfy programmatic, aesthetic and technical requirements. During the Masters trajectory, the complexity of the architectural design increases, leading to the level required for professional practice. - During this period, skills are acquired to increasingly incorporate an understanding of design processes, architectural history and theory, art, technology and human sciences. - Additionally, skills are acquired to incorporate into design an understanding of the relation between buildings, spaces and society's needs, including environmental aspects. - During Master 1, 2, 3 & 4, skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing. - Together with the building technology training, during Master 1, 2, 3 & 4 skills are acquired to incorporate an understanding of the design process with regard to structural design, materialisation of buildings, comfort and climate control. 	
Education Method	Atelier: 150 hours Self study: 270 hours	
Course Relations	<p>MSc1 studios are linked to two other courses of The Why Factory: the Actualities Workshop (AR1TWF020) and the Future Models seminar (AR1TWF030).</p> <p>Students who join the MSc1 design studio AR1TWF010 as core course must join AR1TWF020 and AR1TWF030 as well.</p> <p>Students who join the design studio AR1TWF010 as an optional MSc2 studio are not obliged to join AR1TWF020 and AR1TWF030. However, we advise students to join the Future Models seminar AR1TWF030, as it may be helpful for the content of the design studio.</p>	
Assessment	Presentation	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1TWF020	The Why Factory: Actualities Workshop	3
Responsible Instructor	Prof.ir. W.G.M. Maas	
Responsible Instructor	A.B.O. Ravon	
Responsible Instructor	F.M. Madrazo Salazar	
Course Coordinator	J. Arpa Fernandez	
Instructor	A.B.O. Ravon	
Instructor	Prof.ir. W.G.M. Maas	
Co-responsible for assignments	S. Gargaretas	
Contact Hours / Week x/x/x/x	58 hours per semester	
Education Period	1	
Start Education	1	
Exam Period	none	
Course Language	English	
Course Contents	<p>The Why Factory confronts immediate actualities of our world with their urban implications. Collaborating with different stakeholders, institutions, agencies and various practices, The Why Factory explores the possibility of actual interventions. It operates in short-term projects, looking at situations where change is needed. It pragmatically explores the possibilities of the situation and their political, social, economic and cultural implications. Short and intense workshops can be organised. These workshops may take place in different locations in the European Union.</p> <p>The workshop acts as a task force, providing quick, specific and precise answers to an urban urgency. Students and teachers work as one group, producing a profound project consisting of research, analysis and visionary design. As this course addresses urgent topics, the contents will be announced during the semester.</p>	
Study Goals	<p>The student:</p> <ul style="list-style-type: none"> - Is competent in doing research, has the competence to acquire new knowledge through research, and is able to develop new cultural and technological insights in a purposeful and meaningful way - has competently used projective research to develop future city scenarios. - Has appropriate and necessary skills in presentation and visual communication of the research result. - Has built up an argumentation leading to a position on the future city. - Shows skills in using images, media and the written and spoken word in order to convey the essence of a design or theory to others. 	
Education Method	<p>Workshop: 40 hours Self study: 40 hours</p>	
Assessment	Presentation	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1TWF030	The Why Factory: Future Models I	3
Responsible Instructor	Prof.ir. W.G.M. Maas	
Responsible Instructor	Dr.ir. P. Nourian	
Course Coordinator	J. Arpa Fernandez	
Instructor	Dr.ir. P. Nourian	
Instructor	Prof.ir. W.G.M. Maas	
Instructor	Ir. J.J.J.G. Hoogenboom	
Contact Hours / Week x/x/x/x	48 hours per semester	
Education Period	2	
Start Education	2	
Exam Period	none	
Course Language	English	
Course Contents	<p>The Future Models I seminar runs in parallel to the work carried out during the MSc1 studio and is only open for students enrolled in The Why Factory. In the future models seminar, parts of the design are scripted in Grasshopper or other relevant software programs.</p> <p>In the MSc1 design studio, the project is developed and the necessary scientific research is defined. In the seminar, the research is executed in the form of calculations, simulations, modelling or scripting. The students work in the same groups as in the design studio. The research method is individually defined per group, depending on the topic, the necessary research and the pre-qualification of the students. The results are presented as a logic narrative with clear and convincing visual representation.</p>	
Study Goals	<p>The student:</p> <ul style="list-style-type: none"> - Has gained specific knowledge in the fields of architecture theory, technology and human sciences, which enable him/her to link theories and design skills within the design studio in an adequate way. - Has developed an understanding of how people perceive spaces, their positioning, proportions and materialisation and the actual use of buildings, spaces and spaces in-between them. - Has developed an understanding of how a design brief can be related to the actual needs of society at a given moment in history and by doing so, understanding the societal relevance of architecture. 	
Education Method	<p>Tutorial: 28 hours Self study: 56 hours</p>	
Course Relations	<p>The Future Models seminar is directly linked to the Why Factory Design Lab I (AR1TWF010). Students who join the MSc1 design studio AR1TWF010 as core course must join AR1TWF030 as well. In case students join the Design Lab I as an optional MSc2 studio, attendance to this seminar is not mandatory. However, we do encourage students to join the seminar, as it will help work in the Design Lab I. The seminar is NOT open for students who are NOT enrolled in the Why Factory Design Lab I. Students who enrol the Future Models seminar but do not join the Why Factory Design studio, will be automatically un-enrolled.</p>	
Assessment	Presentation	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

Starting Course MSc1

ARX071	Workshops Faculty of Architecture and the Built Environment	1
Responsible Instructor	Dr.ir. R. Cavallo	
Contact Hours / Week x/x/x/x	X / 0 / 0 / 0	
Education Period	1	
Start Education	1	
Exam Period	none	
Course Language	English	
Course Contents	<p>All new MSc students of the Faculty of Architecture and the Built Environment will start the academic year 2018-2019 with a 3-day workshop programme on 30 & 31 August and 3 September 2018.</p> <p>The programme is developed in cooperation with TPM colleagues of the section "Ethics & Philosophy of Technology". With a mix of lectures, workshops and sessions guided by teachers of the faculty, you will be introduced to (design) ethics, scientific integrity and intercultural communication.</p> <p>With these workshops you will make a first start to cover the ethics engineering learning goals of the MSc programmes. Further, we wish to enhance the interaction between all new students, both Dutch and International, and to introduce you to settings, methods and procedures of the faculty.</p> <p>Participation in the workshops is mandatory for all students starting their MSc 1 programme in September.</p>	
Study Goals	- The student has a basic understanding of moral sensibility, moral analysis skills, moral creativity, moral judgement skills, moral decision-making skills and moral argumentation skills.	
Education Method	Lectures, workshops, role playing game, assignment	
Assessment	Workshops attendance Assessment: V (passed) or NV (failed)	
Special Information	<p>The academic year will start with a three day workshop programme. With a mix of lectures, workshops and sessions guided by teachers of the faculty, you will be introduced to (design) ethics, scientific integrity and intercultural communication. With these workshops you will make a first start to cover the ethics engineering learning goals of the MSc programmes. Further, we wish to enhance the interaction between all new students, both Dutch and International, and to introduce you to settings, methods and procedures of the faculty. The workshops will lay the foundation for your master studies. It is highly recommended for both Dutch and International students to participate in this programme and you will be granted 1 EC after following the whole programme. This EC will be used in your electives list Master 2/3.</p> <p>For more information see website: https://www.tudelft.nl/studenten/faculteiten/bk-studentenportal/onderwijs/master-of-science/workshops-master-students/</p>	
Period of Education	3 days	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

MSc 2

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

Compulsory

AR2A015	Delft Lectures on Architectural Sustainability	3
Responsible Instructor	Ir. P.G. Teeuw	
Responsible Instructor	Prof.dr.ir. A.A.J.F. van den Dobbelsteen	
Course Coordinator	Ir. P.G. Teeuw	
Contact Hours / Week x/x/x/x	14 hours per quarter	
Education Period	1 3	
Start Education	1 3	
Exam Period	1 3 4	
Course Language	English	
Required for	Compulsory MSc2 course for the variant (track) Architecture of the master Architecture, Urbanism and Building Sciences.	
Course Contents	This lecture series emphasizes the possibilities of architecture itself as a means to promote sustainable development. Architecture as a tool to create a more sustainable world. Rather than focus on added sustainable technologies, this course searches for architects possibilities to design good sustainable architecture and a smart organisation. A 'sustainability' driven design attitude should become a second nature for students.	
Study Goals	The student: - Has an overall understanding of the factors associated with: sustainable development related to architectural design. - Has an understanding of the architects responsibilities towards sustainable design. - Is able to position him or herself in matters concerning the relation between sustainable development in general and architecture in particular. - Is capable to formulate possible architectural solutions for building-related environmental issues and has an understanding of their social, ethical and economic dimensions.	
Education Method	Lectures and debate	
Literature and Study Materials	- Reader Delft Lectures on Architectural Sustainability; edition course year 2018-2019, September 2018 (Brightspace) - Jón Kristinsson, Integrated Sustainable Design, Delft/Deventer 2012 - Required reading for the exam: Chapters 2, 3, 4, 5, 8, 9, 10 (Bouwshop) - Anke van Hal, The merger of interests, Breukelen 2009 - Required reading for the exam: up to and including page 17 (Download from the internet) - Anke van Hal, The merger of interests 2.0, Breukelen 2014 - Required reading for the exam: Chapter II and III (Download from the internet) - Some parts of the website http://www.urbangreenbluegrids.com as links included in the reader; edition course year 20182019, September 2018 (Brightspace) - Some articles of the book Circulariteit op weg naar 2050? red. Peter Luscuere 2018 (download from the internet)' pages indicated in the reader; edition course year 20182019, September 2018 (Brightspace)	
Assessment	Written exam	
Special Information	The maximum marking period is 15 work days.	
Period of Education	Quarter	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

Compulsory Choice

AR2A010	Architectural History Thesis	6
Responsible Instructor	Prof.dr.ing. C.M. Hein	
Course Coordinator	Prof.dr.ing. C.M. Hein	
Instructor	Drs. C.A. van Wijk	
Instructor	Dr.mr. E. Korthals Altes	
Instructor	Dr. H.D. van Bergeijk	
Instructor	Dr. M.T.A. van Thoor	
Instructor	Dr. R.J. Rutte	
Contact Hours / Week x/x/x/x	10 hours per quarter	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	Research writing:	
	<p>The student:</p> <ul style="list-style-type: none"> - Demonstrates a general historical understanding of the architecture profession and the role of the architect in society. - Can apply broad knowledge of the history and theory of architecture and related art forms and the humanities, as well as of the social and cultural developments relevant to architectural design. - Has developed appropriate academic writing skills. For TU Delft BSc graduates, a finished AC3 paper should have provided them with skills in planning and developing a research project, critical and responsible use of sources, and logical argumentation. These skills will be applied and expanded during this course. <p>Language skills:</p> <ul style="list-style-type: none"> - The student has appropriate English language skills. <p>If in doubt, the student should consult the OpenSourceware made available through the following links:</p> <p>https://learn.saylor.org/course/view.php?id=42</p> <p>https://learn.saylor.org/course/view.php?id=43</p> <p>These links lead to the English courses offered for free to all by the online Saylor Academy.</p> <p>Please Note: Any issues regarding research skills or language capacities will have to be addressed before the start of this course, and will require serious commitment by the student. The language courses are extensive and the student will not be able to combine them with the normal thesis workload during the semester.</p>	
Course Contents	<p>The history thesis (geschiedeniscriptie) is a required independent research project in the Master 2. It may deal with architecture, urbanism, the visual arts, design and photography, film or literature. It provides students the opportunity to hone their research skills on a historical topic. If the focus is on architecture, the research can also be of a typological kind, for example on a particular type of building, preferably not through the centuries but concentrating on a particular period or aspect. If urbanism is the subject matter, the themes may vary from the regional to the neighborhood scale, design and decision making processes, the role of politics, theories (ranging from functionalism to morphological approaches, from programmatic aspects to ideas about the creative classes and gentrification). It may also be a topographical / territorial topic, where appropriate in combination with other aspects. Finally it can regard also the investigation of an abstract topic: rhythm, scale, theory of proportions, ornamentation, eclecticism and monumentality, etc. in which an historical point of view is dominant.</p> <p>Using mixed methods from archival research and oral history to close reading of visual and textual analysis students critically examine a topic of their own choosing, producing a substantial research paper based on a clear historical perspective. This analytical and conceptual experience forms an important complement to the design&#8208;based education of the master in architecture. Writing a history thesis offers students a unique opportunity to pursue a research on a specific topic and requires students to work independently. Building on historical knowledge and research skills gained in introductory and advanced courses, students focus on primary materials and pursue an original question. They develop a complex argument and grapple with multiple data sets and interpretations. Collective and individual meetings with tutors provide a framework for the production of an original, well&#8208;written essay of about 9000 words. Students need to be familiar with library catalogues and search engines. The essays are required to demonstrate superior and consistent understanding of scientific writing (i.e. footnotes, bibliography, front and back matter). topics have to be approved by the supervisor who has to be a member of the Chair History of Architecture and Urban Planning. The topic has to be discussed with the supervisor prior to commencing. Sometimes teachers will offer a workshop.(See Blackboard).</p>	
Study Goals	<p>Learning objectives</p> <p>After completion of the course the student:</p> <ul style="list-style-type: none"> - Exhibits in depth knowledge regarding a specific field of study within architecture, urbanism, art, and or media. - Is able to plan and develop a scientific research project. - Is able to develop a critical and logical argumentation from a scientific research question based on primary sources. - Is able to evaluate, interpret and make proper reference to available sources. - Is able to build on existing knowledge and develop new knowledge. 	
Education Method	<p>Thesis supervision: 8 hours</p> <p>Independent study: 158 hours (a day in the week has been reserved for working on the thesis)</p>	
Literature and Study Materials	Blackboard	
Assessment	Thesis (For more information - length, references, use of literature and other sources - see blackboard).	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Quarter 1 and quarter 3	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR2AT030	Architecture Theory Thesis	6
Responsible Instructor	Dr.ir. H. Sohn	
Course Coordinator	Dr.ir. H. Sohn	
Instructor	Dr. S.A. Read	
Instructor	Dr.ir. A. Radman	
Instructor	Dr.ir. H. Sohn	
Instructor	Dr.ir. S. Kousoulas	
Contact Hours / Week	14 hours per quarter	
x/x/x/x		
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Required for	As per MSc2 Architecture program requirements.	
Expected prior knowledge	Students are expected to have developed a specific interest in Architecture Theory, which includes previous reading and some research in this field. Previous writing on theoretically driven topics is highly recommended.	
Summary	The Architecture Theory Thesis course offers students the possibility to explore and engage the rich conceptual and theoretical dimensions of architecture through the development of theoretical arguments and intensive research on a topic of their own choice. A free thematic allows students to conduct individual, independent research on issues and concerns that matter to them, thus offering them the opportunity of deepening their knowledge and expertise on topics which are close to their interests and passions. The focus in all cases, however, will be placed on developing the theoretical aspects of these topics.	
Course Contents	The Architecture Theory Thesis course is designed to guide participating students through the different stages of academic research and writing, aiding them in the identification of the theoretical dimensions and frameworks of their selected research topic and 'problématique', offering them relevant and timely feedback and support on their progress throughout the term. The tutors involved in this course assist students in the formulation of sound problem statements, research questions and argumentation lines towards the production of qualitative theoretical Masters' Theses.	
Study Goals	Although students are required to bring their own research passions and topics of interest to the course, we encourage students to orient these topics within two general domains or areas of specialization: 1. Architecture and political economy: Dealing primarily with research on the systemic and scalar complexities of (power) relations, forces, flows and networks, focusing primarily on their impact on -and relationship to- the (built) environment. Further angles include research on geo-politics, bio-politics and contemporary political-economy through critical and speculative investigations on the spatial, social and material transformations and consequences that these unleash across multiple scales, levels and domains. Possible themes, topics and approaches are: critical/speculative approaches to contemporary urbanisation; territorial & material flows: refuge & migration; metabolic/planetary urbanism; socio-material and spatial practices: resistance, subversion, transgression, social movements; etc. Key thinkers: David Harvey, Neil Smith, Peter Marcuse, Neil Brenner, Henri Lefebvre, Erik Swyngedouw, Andy Merrifield, Matthew Gandy, Manuel Castells, Saskia Sassen, Michel Foucault, Slavoj Zizek, Loïc Wacquant, among many others. 2. Architecture and libidinal economy: Research topics dealing primarily with issues related to matter and image, and the means and techniques of production in architecture. Mainly focused on pluralist approaches and speculative theory methodologies, and philosophical inquiries. Themes include the social effects and human affects of technological developments on the mode and means of conceiving, developing and producing cultural objects, artifacts and/or architecture. In other words, research on the material and immaterial processes and productions of things and images and their relation to experience, perception and cognition. Key words or concepts: technology, media, materialism/new-materialism, radical empiricism, speculative realism, ecological thinking, affordance, biopower/noopower, affect theory, complexity theory, geometry, space, time, memory, perception & experience of space. Key thinkers: Gilles Deleuze, Felix Guattari, James J. Gibson, Brian Massumi, Manuel DeLanda, Katherine Hayles, Henri Bergson, Martin Heidegger, Bruno Latour, Katherine Malabou, Jane Bennett, Karad Barad, Rosi Braidotti, Stanford Kwinter, among many others.	
Education Method	Upon completion of this theory course the participants will: have a solid base of knowledge on recent literature in the humanities and the social sciences and their relation to architecture practice and theorization. the appropriate knowledge of the theory of architecture and related art forms as well as of the social and cultural streams of relevance for architectural design. have developed in-depth knowledge regarding the specific field of study relating to architecture, urbanism, art, and/or media. have acquired knowledge and practice on academic research and writing skills, and will be able to apply these in theoretical argumentation and the formation of discourse. have developed a consistent and cohesive research methodology by distinguishing between a problem statement, an argumentation paper and fully developed research paper will have acquired understanding of the societal, cultural, technological and ethical dimensions and implications of conducting research on architecture	
Education Method	The Architecture Theory Thesis course is based primarily on independent self-study. It nevertheless offers students sufficient and qualitative contact-time at the early stages through the Introduction Lecture and two group meetings in which students are encouraged to introduce and discuss their topics and theoretical frameworks with their peers and tutors. The exchange of peer-reviews and feedback at this stage offers students a solid point of departure. After the group meetings in the beginning of each term, students develop their work independently. The progress is checked and discussed at regular intervals, guidance is offered through written feedback from the tutors, followed by individual consultation moments, when students can discuss their work with tutors in person. Since this course is based on a self-study format, feedback and guidance are offered on the progress made by the students, who take full ownership of their work. Tutors assist, encourage and advise students in their research and writing, and accompany them throughout the development of their Theses within one semester. Preparatory Phase: Self-study	

Formulation of Abstract

Introductory Phase:

Contact-time

Introduction Lecture: course introduction

Group meetings (2): tutor-led seminar-type discussions and peer-reviews

Problem Statement & Research Questions

Preliminary Reading List

Research-Writing Phase:

Self-study periods

First & Second Drafts

Feedback & Consultations

Final Thesis

For more information please contact the course coordinator.

Course Relations

This course is a required choice-course for MSc1/2 curriculum that awards 6 ECTS upon successful completion.

Accreditation is required for P2 registration, hence we urge students to complete this course prior to MSc3 enrolment!

This course is highly compatible with the Architecture Theory Design Studio Agential Materialisms (AR2AT020) offered only in Spring terms Q4. Students wishing to follow both courses in one term are asked to enrol in the assigned period Q1/3 and Q4.

For questions please contact the course coordinator.

Literature and Study Materials

Part of the objectives of this course is for students to learn how to build a detailed and relevant reading list and research bibliography based on their individual thesis topic. Hence, students will largely define their consulted first and secondary sources.

Tutors will recommend relevant readings and sources during the feedback phases of the course, and upon request by students.

Prerequisites

As per MSc2 Architecture program requirements.

Assessment

This course will be assessed via a series of deliverable assignments:

Problem Statement

First and Second Progress Drafts

Final Thesis

For evaluation criteria and rubrics please consult the course information on Brightspace or contact the course coordinator.

Enrolment / Application

This course has limited enrolment and special requirements!

All interested students are requested to submit a tentative thematic research proposal (motivational abstract) to the Architecture Theory chair in order to determine the theoretical viability of the proposal in advance.

Research proposals should be uploaded on Brightspace and sent via email to the AT chair office, by the announced deadline. Students will receive an email after registration to the course. The abstract deadline will always be prior to the beginning of the course.

A concept form for the tentative thematic research proposal and further information are available upon request.

Send us an email to: AT-MS-C-BK@tudelft.nl

Note: The submission of a proposal does not guarantee acceptance into this course. Proposals that are not theoretical or that lean on clearly historical methods, will not be selected, and the students will be informed prior to the beginning of the course.

Note: Due to the seminar structure of this course students must be able to attend the introductory information lecture, and the group meetings held in the first quarter of the semester.

Students with course scheduling conflicts should not sign up for this course.

This course is not open for students following a study abroad semester.

Special Information

The maximum marking period is 10 working days from the final deadline. Marks will be registered in advance of the following academic term.

This course is equivalent to the History Scriptie. It is mandatory and awards 6 ECTS upon completion.

This course has limited enrolment, and is open to students who submit a tentative thematic research proposal with clear theoretical scope.

This course requires attendance to lectures, group meetings and consultations. Thus, students with schedule conflicts or study abroad plans are not eligible for this course.

Period of Education

Full semesters (Q1-2 & Q3-4)

Minimum aantal deelnemers 30

Maximum aantal deelnemers 75

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

21 ECTS Electives

Introduction 1

The Master 2 program of Architecture consists of a total of 30 credits, of which 21 credits compulsory and 9 credits free elective.

Compulsory (total of 21 credits):

- History Thesis (AR2A010) or the Theory Thesis (AR2DSD820) of 6 credits
- The Delft Lectures on Architectural Sustainability of 3 credits
- An approved Master 2 Architecture design project (12 credits) (see list in studyguide)

Elective (total of 9 credits):

- free electives as to be found in the studyguide

There are 3 possibilities for doing the Architecture Master 2 design project:

- 1 - the Master 2 Architecture design project can be an Architecture Master 1 design project (that you have not followed yet), that you attend as an Master 2 design project (12 credits)
- 2 - a design project (12 credits) from the 'MSc 2 design project list', either a semester project or a quarter project (quarter 2 or quarter 4)
- 3 - it is also possible to participate in an (international) program of another university. For this please contact 'International Office' and Students Affairs (O&S)

The courses in this section are agreed on by the faculty Director of Education and the Master coordinator of Architecture as Architecture design projects suitable for Master 2.

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

MSc 2 Design Projects

AR0026	MEGA	12
Responsible Instructor	Dr. M. Turrin	
Responsible Instructor	Prof.ir. R. Nijssse	
Course Coordinator	Dr. M. Turrin	
Contact Hours / Week	93 hours per quarter	
x/x/x/x		
Education Period	4	
Start Education	4	
Exam Period	none	
Course Language	English	
Expected prior knowledge	Each student is expected to have knowledge about the disciplines to perform in the course. The level of the knowledge should be at least BSc.	
Summary	<p>MEGA is a collaborative integral multi-disciplinary design of a special big and/or tall building. This could be a multifunctional skyscraper or a multifunctional building with a large span, such as a stadium, a sports facility, a museum, an airport, train station or transport hub.</p> <p>The course targets master students in Architecture, Real Estate & Housing, Building Technology and Civil Engineering; and it is open to non-TU Delft students, conforming with TU Delft regulations. It can be chosen by Building Technology students in MSc2 (choice between EXTREME AR2AE010 and MEGA AR0026).</p> <p>Students work in teams. The design team of 4 to 7 students is responsible for delivering an integrated design as a multidisciplinary team; while each student is responsible for one discipline.</p> <p>Disciplines involved are: architecture, structural design, climate design, façade design, design/construction management and computational design/BIM. Sustainability runs transversally across these disciplines.</p> <p>The design process occurs in a collaborative digital design environment, supporting the workflow across the different disciplines. The collaborative digital design requires an integrated 3D approach with BIM (Building Information Modelling), performance analysis, and file to production processes.</p> <p>The workshop is very realistic and closely matches the design process of large international projects in the competition phase; it is a very good preparation and experience builder for your future career. It is highly appreciated by future employers.</p> <p>The course is supported by external international design/engineering offices. With them, the location of the project will be chosen and the brief of the design assignment will be developed. As examples from recent years, support was given by Arup and UNStudio, by ABT and Neutelings Riedijk Architecten. Examples of past collaborations include also Municipalities and Provinces, such as the City of Rotterdam, Almere and Den Haag, and the Province of Friesland.</p>	
Course Contents	<p>Disciplines:</p> <p>The team is organized on disciplines:</p> <ul style="list-style-type: none"> -Architectural Design -Structural Design -Climate Design and building services -Façade Design -Project and construction management -Computational Design <p>The disciplines are divided amongst the team members; each member is responsible for the contribution and integration of these aspects in the collective design. Students are encouraged to match their role in the team with the specialization they follow in the Master track.</p> <p>Phases:</p> <p>The course is structured in 3 phases:</p> <ul style="list-style-type: none"> -Lectures; excursion; intensive learning -Sketch design of 2-3 options; presentation of options; choice of one option -Preliminary design of the chosen option; final presentation <p>The first phase includes lectures by professors, external experts and architectural/engineering firms. During the excursion, the project site is visited. Intensive sessions allow studying and practicing group dynamics, collaborative work, computational design.</p> <p>The second phase focuses on the design of multiple options. The daily design activities are facilitated by tutors who are expert in the disciplines. Each discipline has a weekly time for individual consults. During a presentation, one design option is chosen for further development.</p> <p>The mid-term presentation is facilitated by external experts. Feedback by them and tutors inform the design and decision-making. Following, the external experts give a (public) lecture.</p> <p>After the mid-term presentation, the design option is detailed with the team, leading to the end presentation. The end presentation is an important event with external experts assessing the designs. The design is summarised in reports about each discipline.</p> <p>Site:</p> <p>The assignment has an actual site where the building is planned. Past examples are in Amsterdam, Rotterdam, London, Brussels, Guangzhou.</p> <p>Objectives:</p> <p>Collaborative design</p> <ul style="list-style-type: none"> -Working together with different disciplines (different goals and backgrounds) -Realistic design environment <p>Sustainable design</p> <ul style="list-style-type: none"> -Definition of sustainability for project -Contribution of all disciplines to holistic sustainable design -Development of low/zero/plus energy design <p>Computational Design</p> <ul style="list-style-type: none"> -Collaborative digital workflow across disciplines / BIM 	

- Parametric design strategies/methods
- Performance analysis with simulation tools
- Feedback loops between numeric assessments and geometric modelling
- Digital interaction between design, engineering, analysis, manufacturing and construction

Architectural Design

- Interaction architecture/masterplan/environmental context
- Development of architectural design concepts
- Integration of structural, façade, climate concepts into architectural design
- Integration of sustainability and construction into architectural design
- Development of preliminary design

Structural Design

- Development of structural concepts
- Development of concept design
- Evaluation of different structural systems in relation to architectural design
- Integration with architecture, façade, climate design
- Dimensioning of structural elements
- Development of preliminary design

Climate design

- Developments of climate and building services concept
- Development of conceptual design
- Evaluation of different climate and building services systems in relation to architectural design
- Integration with architecture, structure, façade
- Dimensioning of HVAC installations
- Development of preliminary design

Façade design

- Development of façade concepts
- Developments of conceptual design
- Evaluation of different façade systems in relation to architectural and climate design
- Integration with architecture, structure, building services

Project and construction management

- Control of objectives, tasks, deliverables
- Facilitation of the group process
- Prediction of income and building costs; optimisation
- Development of site management and logistics
- Development of construction methods/planning

Study Goals

The student is able to design a coherent, significant, elaborated, correct and innovative design - on mainline and on aspects on MSC 2 level.

Specified for this course:

After successful completion of the course, the student will be able to:

- work in an interdisciplinary design process;
- understand and apply discipline-related knowledge in projects for big or tall buildings.
- develop design strategies to achieve high building performances;
- integrate numeric analysis and simulations to address design choices.

Education Method

In this course, the education methods are:

- Lectures by professors and specialists
- Collaborative working sessions with other students
- Exposure to external architectural practice and external experts
- Consults with tutors
- Making presentation and receiving/integrating feedback

Special is the involvement of external practitioners and external experts linking this course to practice.

For this course several multidisciplinary teams of students are formed, which are each responsible for one integral design. Each student has a different role in the design team and is tutored by instructors specialized in her/his discipline. When possible, students take roles according to their specialization during the Master studies.

Apart from focussing on his/her own discipline, the aim for each team-member is to achieve the best integral design paying special attention to collaborative design, sustainable design and computational design.

Feedback is received during the mid-term and final presentation from the external experts and tutors.

Literature and Study Materials

More specific literature is provided at the start of the course. The literature below provides an indication on relevant general content.

Tall Buildings

- Kloft, E., Eisele, J., (Ed), (2003) High-Rise Manual, Hardcover
- Ng, E. (Ed.). (2010) Designing high-density cities for social and environmental sustainability. London, Earthscan.
- Ali MM, Moon K. (2007) Structural developments in tall buildings: currents trends and future prospects. Architectural Science Review 50(3): 205223.
- Baker WF, Korista DS, Novak LC. (2008) Engineering the worlds tallest Burj Dubai., In The CTBUH 8th World Congress Tall & Green: Typology for a Sustainable Urban Future, Dubai; 110.
- Brown, N. C., & Mueller, C. T. (2016) Design for structural and energy performance of long span buildings using geometric multi-objective optimization. Energy and Buildings, 127, 748-761.
- Cross, P., Vesey, D., Chan, C.M., (2007) High-Rise Buildings. In Melchers, R.E., Hough, R., (Ed), Modeling complex engineering structures, ASCE.
- Stylianou, D., Charitou, R., Hesselgren, L., (2006) Computational Methods on Tall Buildings - The Bishopsgate Tower, Communicating Space(s) In proceedings of eCAADe 2006, 778-785.
- Almusharaf, Ayman M.; Mahjoub Elnimeiri (2010) A Performance-Based Design Approach for Early Tall Building Form Development, CAAD - Cities Sustainability, Proceedings of ASCAAD 2010, 39-50.
- Kimpian, J., Mason, J., Coenders, J., Jestico, D., Watts, S., (2009) Sustainably Tall: Investment, Energy, Life Cycle., In proceedings of ACADIA 2009: reForm() - Building a Better Tomorrow, 130-143.
- The Structural Design of Tall and Special Buildings, International Journal, John Wiley & Sons, Ltd
- Moon K, (2008) Sustainable structural engineering strategies for tall buildings. In: The Structural Design of Tall and Special Buildings, Special Issue: CTBUH 2nd Annual Special Edition: Tall Sustainability 17(5): 895914.
- Taranath, BS, (2011) Structural Analysis and Design of Tall Buildings: Steel and Composite Construction. Taylor & Francis.
- Taranath, BS, (1988) Structural Analysis and Design of Tall Buildings. McGraw-Hill, New York.
- Schueller, W., (1986) High-Rise Building Structures (2nd edn.) Robert E. Krieger Publication Company, USA.

Big buildings

Barnes, M., Dickson, M., (Ed.), Widespan Roof Structures, Thomas Telford, London, 2000

Hough, R., Carfrae, T., *Lightweight Long-Span Roofs*. In Melchers, R.E., Hough, R., (Ed), *Modeling complex engineering structures*, ASCE Publications, 2007

Imbert F., KathrynStutts Frost, Al Fisher, Andrew Witt, Vincent Tourre, and Benjamin Koren, (2012), *Concurrent geometric, structural and environmental design: Louvre abu dhabi*. In *Advances in Architectural Geometry*, 7790.

Kawaguchi, M., (1991) *Design problems of long span spatial structures*. *Eng. Struct.* 13, 144163.

Majowiecki, M., (2005) *Structural architecture for large roofs: concepts and realizations*. *Bautechnik*, 82(3): 147156.

Majowiecki, M. (1990) *Observations on theoretical and experimental investigations on lightweight wide span coverings*, International Association for Wind Engineering, ANIV.

Hladik, Pavel; Clive J Lewis (2010) *Singapore National Stadium Roof*, *International Journal of Architectural Computing* 8(3): 257-278

Shepherd, P., & Hudson, R. (2007) *Parametric definition of Landowne road stadium*. in: *International association of shell and spatial structures*, Venice, Italy, 2007,CD-ROM.

Hudson, R. (2008) *Frameworks for practical parametric design in architecture*. In: Pottman, H., Hofer, M. & Kilian,A. (eds), *Advances in architectural geometry*. Vienna, Austria,17-20.

Sanchez-Alvarez J, (2005) *Materializing geometry: the free-form reticulated roof structures for the new Milan Fair*. In: *Proceedings of AEC2005 Symposium*, Rotterdam, NL.

Assessment

Presentations and Reports

Assessment is twofold:

- Group assessment for integral group design based on presentations
- Individual assessment for discipline report

The students mark is a combination of the group assessment and individual assessment.

Special Information

The maximum marking period is 15 work days.

Remarks

The course is in English - spoken and written.

Period of Education

Quarter

AR0037	Studio Making	12
Responsible Instructor	Ir. H.A. van Bennekom	
Responsible Instructor	Ir. S.T. Bakker	
Course Coordinator	Ir. H.A. van Bennekom	
Education Period	3 4	
Start Education	3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	completed MSc1	
Course Contents	<p>"Studio Making" is a design studio that offers realistic design challenges, with real external partners, embedded in a series of interesting lectures and site visits. The topics and assignments will be mainly focussed on designing new ideas (based on solid research on the local needs and context) to increase and support circular processes in which demolition waste becomes an ingredient in new concrete. By doing this, the new results will therefore probably possess exciting, unexpected, new qualities and possibilities.</p> <p>TU Delft/Complex Projects is participating in an international project team of researchers, designers and builders that are seeking new applications with re-used raw materials (demolished concrete, brick and tiles). The TU Delft/Complex Projects is especially asked to participate in this international project because of its educational, research and student design qualities. "Studio Making" will be dedicated to designing new applications with recycled concrete and other raw materials, for real projects through western Europe. The sites will be visited during the course, and our designs will be discussed and evaluated with local parties and stakeholders in order to be realized.</p> <p>The Design "Studio Making" builds on the successful approach and contents of the 3ects course 'Making', in which students explore new design possibilities through hands-on experimenting and modeling with concrete, supported by lectures, site visits and design consulting.</p>	
Course Contents Continuation	<p>About 50% of primary raw materials in the EU are used in the building sector. At the same time, this building sector is also responsible for about 35% of all wastes. Within the construction and demolition wastes, components like concrete, bricks, tiles and ceramics have very high potential to be applied as recycled aggregates and sands in new types of concrete etc. However, until now, recycled materials are mostly down-cycled to be used as filling materials in infrastructure projects. Although the recycling quota in North-West Europe is more than 70%, but less than 4% is re-used for the original purpose: concrete production. To support recycles and further development of sustainable improvements, this studio will design new applications of concrete in which recycled aggregates define new qualities and possibilities</p>	
Study Goals	<p>the student:</p> <ul style="list-style-type: none"> - Has developed further skills in architectural design satisfying both aesthetic and technical / functional requirements. - During this trajectory skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology, social and human sciences. - Additionally, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and society's needs, including environmental and waste aspects. - During Master 1, 2, 3 & 4 skills are acquired by cumulation to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing. - skills are acquired to incorporate an understanding of the design process with regard to structural design, materialisation of buildings, comfort and climate control. 	
Education Method	design, tests, presentations, site visit, visiting critics	
Assessment	design and research book	
Special Information	The maximum marking period is 10 work days.	
Elective	Yes	
Tags	Challenging Design Drawing Energy & Industry Projects Prototyping Sustainability	
Period of Education	week 3.8 kick off, week 4.1-4.11 studio	
Leerstoel	CP	
Minimum aantal deelnemers	2	
Maximum aantal deelnemers	24	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR0052	Design Studio: Architecture and Urbanism Beyond Oil	12
Responsible Instructor	Prof.dr.ing. C.M. Hein	
Course Coordinator	Ir. H.A. van Bennekom	
Contact Hours / Week x/x/x/x	0/X/0/X	
Education Period	2 4	
Start Education	2 4	
Exam Period	none	
Course Language	English	
Expected prior knowledge	completed MSc1	
Course Contents	<p>An end to our petroleum-based lifestyles and the use of renewable energies will impact our cities and buildings. The Studio Architecture and Urbanism Beyond Oil argues that we have to first understand the enormous collective presence of oil in the built environment, its impact on production processes, financial flows, and associated social and cultural patterns in our everyday environment, and the long history of oils impact on our lives. Then, we can imagine the needs and spaces of the future and transform our existing landscapes, cities and buildings. The Architecture and Urbanism Beyond Oil studio starts with an investigation of how petroleum its extraction, refining, transformation, and consumption has shaped our built environment in visible and invisible ways around the world over the last 150 years. Some students have built on their history thesis exploring oil depictions in Hollywood films or evolving mental maps of oil as a foundation or design. Others have explored the historical development of sustainable architecture through the elective "Building Green." The studio identifies global landscapes of energy and oil. It maps and translates the findings into accessible visuals, with the goal to develop an architectural, urban or landscape project that address these findings and propose new uses and solutions. The studio has included analysis of the relevance of oil for the urban and architectural form of the port and city of Rotterdam. Students have imagined possible transition trajectories, notably suggesting a recuperation of the oil-dedicated spaces from the sea-side and new connections across the river. Other students have imagined the transformation of gas stations as lifestyle hubs, roads as energy generators, or floating self-sustaining cities. Design strategies developed in the studio can be applied to cities around the globe and possible research destinations including Rotterdam, Dunkerque, Philadelphia, Houston, and Curacao.</p>	
Study Goals	<p>Architectural and urban design are anchored in larger political, economic, social and cultural contexts. Students will learn how to place their design into the global context of oil as a commodity, the generator of financial flows, and as a mindset. They will do primary research on Rotterdam as a case study. They will work in groups on a chosen location and develop a project that acknowledges the larger theoretical and methodological premises of the course and that takes into account the different disciplinary backgrounds of the participating students.</p>	
	<p>The course is open to students in architecture, urbanism, real estate, heritage, architectural history, history and media studies, etc. and mirrors in its composition the nature of design practice.</p>	
Education Method	Lectures, discussions, and studio design work.	
Assessment	Grades will be based on course participation, assignments and the final project.	
Special Information	The maximum marking period is 10 work days.	
	Open for students from all Dutch institutions. External students please check: http://tinyurl.com/qam99u4	
Period of Education	Quarter	
Minimum aantal deelnemers	4	
Maximum aantal deelnemers	24	

AR0067	Architecture & Urban Design	12
Responsible Instructor	Dr.ir. M.G.A.D. Hartevelde	
Responsible Instructor	Dr.ir. R. Cavallo	
Course Coordinator	Dr.ir. M.G.A.D. Hartevelde	
Contact Hours / Week x/x/x/x	8 hours per week	
Education Period	4	
Start Education	4	
Exam Period	none	
Course Language	English	
Expected prior knowledge	Skills are acquired to incorporate an understanding of the design (process) attained with regard to architectural/urban history, theory, art and technology as well as relevant general knowledge of human sciences. Additionally, skills are acquired to incorporate an understanding of the design (process) attained with regard to the relation between buildings, public spaces and society's needs, including environmental aspects. During the trajectory of the Master 1, 2, 3 & 4 studios, the complexity of the architectural and urban design increases leading to a level fit for architectural/urban practice.	
Course Contents	<p>Interventions in the contemporary city need constantly to be grounded on sharp design approaches in order to respond adequately to the necessities of our times.</p> <p>Nowadays we meet in public atria and do shopping in malls; we move along covered walkways and go from street to street by taking shortcuts through the buildings of a city block. All kinds of buildings hybridised and became multi-functional anchors in the city serving thousands of people daily. The railway stations of today are entangled with the urban tissue, airports have become cities, conference centres and world expos temporarily change the urban composition, and museums are also leisure centres. In the recent decades, the amount and the proportion of public space within urban buildings has steadily increased, with much of it forming part of a larger interior and exterior pedestrian network. On the other hand the amount and size of public buildings within the urban context increased too, changing the way the contemporary city is constructed. However, still rarely designers approach the city as architecture or the building as urban design.</p> <p>For these reasons there is nowadays a great need of identifying the available design tools in order to plan effective future interventions in our cities. Particularly in the case of existing urban environments, design approaches require a conscious understanding of urban design as well as an adequate knowledge of changes in building typologies.</p> <p>In this design studio, architects and urban designers work together in the examination of the urban space as architectural space and the architectural space as urban space. In this experimental design project, students and staff are interested on one hand to the urban intervention in the built environment and its effect on architecture, and at the other hand to the architectural treatment of the city and its effect on urbanism.</p>	
Study Goals	<p>The student:</p> <ul style="list-style-type: none"> - understands the interrelation of architectural and urban design, to evaluate and create proposals for strategic interventions, with regard to spatial-social patterns and the culture of the city - evaluates skills in architectural and urban design to create an elaborate design proposal in typological terms related to use, ownership and meaning - creates an elaborate design proposal on the edge/overlap of both professions, satisfying formal, technical and functional requirements, including materialisation. 	
Education Method	Interactive studio work	
Assessment	Design / Research, presented in drawing form with written commentary and a model.	
Special Information	<p>The maximum marking period is 10 work days.</p> <p>The studio work includes an excursion to the site. Please, do not hesitate to inform with the course coordinators what this year's case studies is.</p>	
Period of Education	Quarter 4	

AR0072	Solar Decathlon	12
Responsible Instructor	Prof.dr.ir. A.A.J.F. van den Dobbelsteen	
Course Coordinator	Ir. P.G. Teeuw	
Contact Hours / Week x/x/x/x	8 hours per week	
Exam Period	none	
Course Language	English	
Course Contents	<p>The Solar Decathlon is a bi-annual competition of solar homes built by universities across the world. TU Delft is also participating in this competition.</p> <p>This course is connected to active involvement of students participating in the TU Delft Solar Decathlon team. This course deals with the architectural and technical design and elaboration of the TU Delft entry to the Solar Decathlon competition.</p>	
Study Goals	<p>The student is able to design a coherent, significant, elaborated, correct and innovative design - on mainline and on aspects on MSC 2 level.</p> <p>Specified for this course; the student is able to:</p> <ul style="list-style-type: none"> - collaborate in a team with other students - work on a joint design of an energy-neutral or energy-producing house - integrate various aspects of sustainability into the design of the house - elaborate on components of the design challenge, related to architectural design, structural design and engineering, envelope design and engineering, climate design and engineering, HVAC systems, electrical systems etc. 	
Education Method	Tutorials, workshops, (mid-term) presentations, reporting, exhibiting	
Assessment	The design, report and oral presentations will be assessed by different criteria. Also the group attitude and pro-activity of the student will be reviewed.	
Period of Education	Semester	

AR0076	The New Town: Design Studio Africa	12
Responsible Instructor	M.J. Emmerik	
Responsible Instructor	Prof.dr. W.A.J. Vanstiphout	
Course Coordinator	M.J. Emmerik	
Instructor	Prof.dr. W.A.J. Vanstiphout	
Instructor	M.J. Emmerik	
Education Period	4	
Start Education	4	
Exam Period	none	
Course Language	English	
Summary	<p>This Research and Design studio is focused on one of the fastest urbanizing regions in the world: the African west coast between Cote d'Ivoire and Nigeria where more than a dozen agglomerations with millions of inhabitants are stretched over an area of approximately 500 miles. This creates an urban area with a potential coherence and accumulative value comparable to regions such as the East Coast of the United States or the Pearl River Delta in China.</p> <p>The African 500 mile city however, in contrast to its American and Chinese stretches across five countries, with different political systems, economies working at different speeds and complex relationships with each other. On an urban level, they are connected by a dynamic of urbanization due to immigration and economic growth which brings huge pressures on the livability and ecological sustainability of the area. Conversely, the urbanization process itself is hugely pressurized by the effects of climate change, making linear city between Accra and Lagos one of the areas most at risk both from the rising of the sea level, and the swelling of rivers such as the Volta and the Niger.</p> <p>But there is more holding this region together. This part of West Africa has a very old, precolonial, precolonial history of urban civilization and states, with great examples in the Dahomey and Benin kingdoms. This shared history was however hacked into pieces during colonial times, that also brought with them a series of trading posts later developing into the metropolises of today. There is, in other words a large historical heritage to be found on the ground as a cultural backbone to the 500 Mile City.</p> <p>In this research and design studio students develop Urban and Architectural design projects based on extensive fieldwork in West Africa, exploring this area through the perspective of modern new town planning and try to conceptualize and explain these conurbation as part of the present global urbanization. How can we understand these large urban areas as a physical manifestation of its various backgrounds? How can we use the design models used by architects and urban planners for new town planning in the past to deal with this rapid urban growth? What are the contemporary planning issues of the new cities of the 21st century? Can the developed and developing nations learn from each other in the planning and development of new towns? And what effects does this have on the daily lives and the economies of the regions involved?</p> <p>This course, in combination with The New Town: Lecture series (AR0023) is open for students from the master tracks in Architecture (MSc2) and Urbanism (Q4 elective). It is organized by the chair of Design as Politics in collaboration with the International New Towns Institute.</p>	
Course Contents	<p>In this research and design studio you will develop Urban and Architectural design projects based on extensive fieldwork in West Africa. We will concentrate on a massive transnational conurbation that is forming between Abidjan (Ivory Coast) and Lagos (Nigeria). We will explore this area through the perspective of modern new town planning and try to conceptualize and explain these conurbation as part of the present global urbanization.</p> <p>The aim of the studio is to understand the development of this unplanned megacity, its effects on the daily life and local economies, and to explore the role that design and new town planning might play on many different scales in this urban situation where there is no strong role for a central state.</p>	
Study Goals	<p>After successful completion of this course you are able to:</p> <ul style="list-style-type: none"> Analyze the physical manifestation of rapidly urbanizing areas in relation to the social-economic and political context in which they emerge and to transform your findings into a design brief. Develop strategic architectural or urban interventions that guide or facilitate rapid urban growth. Reflect on western planning principles and their application to the African context and visa versa. 	
Education Method	<p>Design tutoring / Studio sessions / Presentations / Field research</p> <p>One meeting each week, consisting of design tutoring and collective pin-up sessions combined with extensive field research.</p>	
Course Relations	<p>This studio is complemented by a theoretical introduction to New Town planning (AR0033). Enrollment to this lecture series is compulsory for students participating in this studio.</p>	
Assessment	<p>Assessment takes place based on a design project, your attendance and participation during the field research and a final presentation. More information will follow at the beginning of the course.</p>	
Remarks	<p>This studio is organized by the chair of Design as Politics in collaboration with the International New Town Institute, and a number of international global parties such as the Dutch ministry for foreign affairs, UN Habitat and local universities and development agencies. For more information see: www.designaspolitics.nl and www.newtowninstitute.org</p> <p>Participating students are required to cover additional traveling expenses for a field trip to Africa (around 1300,- for travel and accommodation.)</p>	
Period of Education	<p>This course starts in the second semester (spring 2018)</p>	

AR0077	The Why Factory MSc2 Design Studio	12
Responsible Instructor	Prof.ir. W.G.M. Maas	
Course Coordinator	J. Arpa Fernandez	
Responsible for assignments	S. Gargaretas	
Contact Hours / Week x/x/x/x	0/0/0/X	
Education Period	4	
Start Education	4	
Exam Period	none	
Course Language	English	
Course Contents	<p>This course is a MSc2 studio, and is organized as a think tank. Studios at The Why Factory are content-driven design and research studios with a practical and theoretical scope. MSc2 studios are research labs and platforms that aim to analyse, theorize and construct future cities. They conduct a variety of investigations within the given world, and produce future scenarios beyond it: from universal to specific and global to local.</p> <p>MSc2 studios start with a specific brief and a statement on the future of urban life. Based on the brief, future scenarios will be developed leading to visionary, city-related designs.</p> <p>Students develop their specific approach to the brief and define the necessary scientific research. Calculations, simulations or modelling to support the studio work are elaborated in a parallel seminar: the MSc2 Future Models I seminar.</p> <p>The results of the research lead to a design project with consequent logic, convincing argumentation and illustrative and fantastic visuals.</p>	
Study Goals	<p>Upon completion of the Master 1, 2, 3 & 4 studio trajectory, the student:</p> <ul style="list-style-type: none"> - Has developed the necessary skills in architectural design that satisfy programmatic, aesthetic and technical requirements. - During the Masters trajectory, the complexity of the architectural design increases, leading to the level required for professional practice. - During this period, skills are acquired to increasingly incorporate an understanding of design processes, architectural history and theory, art, technology and human sciences. - Additionally, skills are acquired to incorporate into design an understanding of the relation between territory, buildings, spaces and societies needs, including environmental aspects. - During Master 1, 2, 3 & 4, skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing. - Together with the building technology training, during Master 1, 2, 3 & 4 skills are acquired to incorporate an understanding of the design process with regard to structural design, materialisation of buildings, comfort and climate control. 	
Education Method	<p>Atelier: 150 hours Self study: 270 hours</p>	
Assessment	Presentation	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Quarter	
Maximum aantal deelnemers	30	

AR0086	Infrastructure and Environment Design	12
Responsible Instructor	Dr. F.L. Hooimeijer	
Responsible Instructor	Dr.ir. T. Kuzniecowa Bacchin	
Course Coordinator	Dr. F.L. Hooimeijer	
Instructor	Dr.ir. T. Kuzniecowa Bacchin	
Instructor	Dr. F.L. Hooimeijer	
Contact Hours / Week x/x/x/x	0/0/0/X	
Education Period	4	
Start Education	4	
Exam Period	none	
Course Language	English	
Course Contents	<p>With urgent urban challenges such as climate adaptation, energy transition, and continued urbanisation, the urgency of integrating planning and design with urban engineering increases. The implementation of new technological interventions and the utilisation of the natural system is hampered by the lack of an integrated approach incorporating urban planning and design decisions. Meanwhile, urban and economic growth increasingly competes for infrastructure and environment, affecting the success or failure of the daily operating systems of cities and thereby urban competitiveness. The challenge is to fundamentally re-think the urban landscape in light of new technologies. The question is how to renew existing cities by integrating the parameters of the natural system, as well as technological innovations directly into urban development opportunities arising from spatial planning and design.</p> <p>In order to stimulate and design the synergy between design and engineering this course offers the possibility for architects, urban designers and landscape architects to get well acquainted with the concepts and language of civil engineers on the subject of infrastructure and environment; at the same time the civil engineers will get acquainted with the world and language of designers.</p> <p>In order to create an emerging path where synergy between the disciplines makes sure that technology becomes embedded in the design process, this course offers possibilities for both urban designers and civil engineers to get well acquainted with each others discipline. This is achieved by collaborating with the course Technology and Practice Water Management in Urban Areas at (CT5510) that elaborates on the technology of building site preparation and will show the collaborative worlds of soil and water.</p>	
Study Goals	<p>The goal of this course is that students will be able to:</p> <ul style="list-style-type: none"> Formulate their design perspective that is based in a conceptual or theoretical framework. Identify and discuss the synergy between natural conditions and technological potential and possibilities in urban environments. Analyse and design infrastructures on a regional scale and on the scale of the section. Identify and discuss the tension between public and private development in infrastructures and environments. Apply methods concerning the appraisal of sustainable urban environments and infrastructure. Demonstrate in a design the connection between the natural system and technical possibilities in urban environments. Be able to translate analyses into design and the design into a formal plan. Perform inter-disciplinary working. 	
Education Method	<p>Readings in the field of knowledge brokerage, technical entrepreneurs, landscape ecology, sustainability and urban theory for a better understanding and theoretical framing of the individual project.</p> <p>Exercises in building a theoretical or conceptual framework and translating analyses into design.</p> <p>Interdisciplinary learning by taking class with civil engineers and policy students in which understanding can be created for each others knowledge and skills, where fences between the knowledge fields can be broken down, where contacts can be made for later in professional careers. The Urban Water Management course starts in Q3 with 8 lectures of which the compulsory ones are indicated in the schedule, the others can be viewed on colleggerama. In Q 4 there is an assignment, excursion and workshop with the urban water management students.</p> <p>Workshops with professionals and with students of technical background to understand differences in language and concepts and learn to apply the technical information to the spatial context.</p> <p>Individual or group project as elaboration of the workshops.</p> <p>Project in practice: research assignment with a partner in practice to answer to the goals of this course. It needs to be with a company or institute, municipal department with a technical focus. With them you need to arrange that you work on a certain research or design project that can be done in 10 weeks, minus the time you need for the other activities in this course and your other electives. You can also take the summer months to extend the internship. The result is a report where, taking in consideration the learning goals for this course, a reflection is done on the project and/or way of working.</p>	
Literature and Study Materials	Literature list is given with the course outline. It covers theory on sustainability, knowledge brokerage, eco system services, urban ecology, infrastructure and urban design.	
Assessment	<p>The course results in an individual project or a project in practice. The content of individual project is:</p> <ol style="list-style-type: none"> 1) Use of theory to frame your research and design perspective. 2) Research and analyses of technical data/infrastructure of your site resulting in an environmental and infrastructure potential map. 3) Research and analyses of the surface of your site, resulting in a surface potential map. 4) Synthesis between 2 and 3 and together with 1 resulting in a (spatial) concept. 5) Concept translated in a performance based urban design that will be translated into a formal plan. 	
Remarks	<p>This course is combined with: Technology and practice Water management in urban areas CT5510 4ects</p> <p>Summary: master course on design and planning of the urban water management system. Water fluxes and relevant processes in water and soil. Storm water, surface water and groundwater drainage design (quantity and quality) in interrelation with subsidence and based on functional demands and standards. Storm water infiltration and building site preparation. Water wise spatial planning and urbanism. Water management policy development.</p> <p>Responsible Professor: Nick van der Giesen Course Coordinator: Frans van der Ven</p> <p>This course includes the course AR0093 Infrastructure and Environment Method Module. It is not possible to take both this course and AR0093.</p>	
Period of Education	Quarter	

AR0094	Bucky Lab A	12
Responsible Instructor	Dr.ing. M. Bilow	
Course Coordinator	Dr.ing. M. Bilow	
Education Period	3 4	
Start Education	3	
Exam Period	none	
Course Language	English	
Course Contents	<p>The focus of the semester is an innovative building construction or facade design for an architectural related building, this may be a part of a building, a pavillion or a facade. The task is a building component in which all the important technical and architectural aspects of a building are integrated in. The first three weeks students individually research and analyse the assignment in order to come up with an innovative concept. The remaining weeks of the semester are dedicated to a design by research process in which all the main aspects of the design, from applied mechanics, material propertie to production techniques are researched ending in an integrated final design. Computer modeling, virtual and full scale material prototyping are part of the process.</p> <p>This course is a shorter version of the already known bucky lab, so expect the same fun but in a smaller package ! We try to focus more on the construction and will reduce the building physics and structural engineering part.</p>	
Study Goals	<p>The student is able to design a coherent, significant, elaborated, correct and innovative design - on mainline and on aspects on MSC 2 level.</p> <p>Specified for this course: the student</p> <ul style="list-style-type: none"> - has an understanding of the relation between design, society, realisation, materialisation and functioning. - is able to design and evaluate building components based on their function and performance. 	
Education Method	Design consultation and computer modeling. Design by prototyping	
Assessment	Individual report of innovative concept and reports in team of two students of design by research process from concept to final design, main focus the level of integration of all the researched aspects.	
Special Information	The maximum marking period is 10 work days.	
Period of Education	summer semester starting in week 6	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR0096	EXTREME technology	12
Responsible Instructor	Prof.dr.ing. U. Knaack	
Course Coordinator	Ir. R. Schroën	
Contact Hours / Week	12 hours per week x/x/x/x	
Education Period	4	
Start Education	4	
Exam Period	none	
Course Language	English	
Course Contents	<p>The project is about building in a extreme situation, in respect to climate, location and function. Essence is the interaction between the extreme circumstances, the technical solutions, and the architecture. Extreme circumstances do request technical solutions which will be the starting point for the design development. The designer has to direct the 'engineer questions and answers', towards the articulation of the form which is based on integration of aesthetic and technology.</p> <p>"Die Architectur des 21 Jahrhunderts hat ihre Unschuld verloren, Gebaude müssen etwas leisten" Stefan Behnisch.</p> <p>In the end the student is able to understand technical solutions, to reflect on them, to applicate them and to transform them. And the student is able to design a coherent design result.</p>	
Study Goals	<p>The student is able to design a coherent, significant, elaborated, correct and innovative design - on mainline and on aspects on MSC 2 level.</p> <p>Specified for this course:</p> <p>In the end the student is able to design a healthy coherent building in extreme conditions with a focus on technical solutions: the student is able to apply, reflect and transform principles concerning climate, construction and structure.</p>	
Education Method	Design project	
Assessment	The design result including the aspects structure, climate and envelope.	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR0098	Sustainability project design and elaboration	12
Responsible Instructor	Prof.ir. M.F. Asselbergs	
Responsible Instructor	Prof.dr.ir. A.A.J.F. van den Dobbelsteen	
Course Coordinator	Ir. P.G. Teeuw	
Course Language	English	
Course Contents	This course is connected to active involvement of students participating in design teams related to practice. This course deals with the architectural and technical design and elaboration.	
Study Goals	The student is able to - collaborate in a team with other students - work on a joint design of a specific (building) design project - integrate various aspects of sustainability into the design of the project - elaborate on components of the design challenge, related to architectural design, structural design en engineering, envelope design and engineering, climate design and engineering, etc.	
Education Method	Tutorials, workshops, (mid-term) presentations, reporting, exhibiting (if applicable)	
Assessment	Portfolio of the design, report and oral presentations will be assessed by different criteria. Also the group attitude and pro-activity of the student will be reviewed. All depending on the specific project .	
Period of Education	Varies.	

AR0149	ON SITE, Landscape architectonic explorations	15
Responsible Instructor	Dr.ir. I. Bobbink	
Course Coordinator	Dr.ir. I. Bobbink	
Education Period	4	
Start Education	4	
Exam Period	none	
Course Language	English	
Required for	students need to be master students	
Expected prior knowledge	design skills	
Summary	Please check the presentations on the Q4-free choice projects for more specific information about the site and the exact theme - this differs every year. In the course, we will study on how to define identity and how to transform ordinary spaces into specific places. We will experiment with different methods and tools. Depending on the theme we might operate as one group.	
Course Contents	In this course, you will learn how to analyse, interpret the spatial identity of a site and translate it into a landscape architectonic design. The scale of the assignment can differ from a garden to an (urban)landscape. Landscapes and cities with a strong identity are highly valued by people. Identity, heritage, continuity and transformation are important notions of todays design practise. In the course, we will study on how to define identity and how to transform ordinary spaces into specific places. Through fieldwork, the site will be studied across experimental analysis methods and techniques, also borrowed from other disciplines, like social sciences and art. The experimental analysis deals with questions related to a site exploration and notation and how to construct a design concept. It depicts the subjective, dynamic and intangible characteristics of the place such as: processes, cultural activities, memories, stories, experiences, rituals by for examples sensorial perception, tracing narratives, investigating historic sources, mapping spaces in various ways and working with experimental photography, etc. As a frame, the course offers an interdisciplinary debate on the theory of place making which feeds the design experiment. These design experiments can become models, films or real constructions in the public realm. The course will involve third parties, for example ongoing research in the section of landscape architecture, assignment from practise or can be part of an event like the Oerol festival on Terschelling etc.	
Study Goals	- to acquire knowledge of the physical form of a specific landscape; - to acquire and use theoretical knowledge on place making; - to study, visualise and edit the topography and spatial identity of a landscape (experimental analyses); - to build a relationship among landscape architecture and other fields of science like geology, archaeology, ecology, history, anthropology, and other creative disciplines like art, architecture and urbanism; - to design a landscape architectonic space.	
Education Method	studio work (experimenting) interactieve lectures workshops fieldwork	
Assessment	oral presentation with the help of: drawings models films or real constructions in the public realm	
Period of Education	Quarter 4	
Minimum aantal deelnemers	15	
Maximum aantal deelnemers	15	

AR0225	MSc2 Studio: Urban (Re)Development Game	12
Responsible Instructor	Y. Chen	
Course Coordinator	Y. Chen	
Instructor	Prof.dr. E.M. van Bueren	
Instructor	Dr.mr. F.A.M. Hobma	
Instructor	Mr.dr. P. Jong	
Instructor	Dr. C. Maat	
Instructor	Dr.ir. M. Spaans	
Instructor	Dr.ir. P.L.M. Stouten	
Instructor	Ir. H.W. de Wolff	
Instructor	Dr.ir. R. Binnekamp	
Instructor	Dr.ir. S. Zijlstra	
Instructor	Dr.ir. L. Volker	
Instructor	Dr.ir. R.S. van der Kuij	
Instructor	Dr.ir. T.A. Daamen	
Instructor	Dr.ir. E.W.T.M. Heurkens	
Instructor	Prof.dr. P.J. Boelhouwer	
Instructor	Drs. P.W. Koppels	
Instructor	Dr.ing. G.A. van Bortel	
Instructor	Y. Chen	
Instructor	Dr.ir. E.H. Stolk	
Instructor	Dr. W.J. Verheul	
Instructor	Ir. L.G.C. Heijnders	
Instructor	Dr. I. Nase	
Contact Hours / Week	0/0/0/X	
x/x/x/x		
Education Period	4	
Start Education	4	
Exam Period	4	
Course Language	English	
Expected prior knowledge	Semester 1 of Master course from Faculty of Architecture and the Built Environment	
Summary	The course is meant for master students from the department of Architecture and Urbanism who have not followed any economic course. During this unit course the theory and the practice of managing urban (re)development processes is explored through lectures, role-playing simulation in urban (re)development project at area scale, as well as at the portfolio and object scale. A third component is finance.	
Course Contents	The unit of course aims to train students to grasp an integral approach when managing urban (re)development both at the urban area scale and at the portfolio and object scale. Through a role-playing simulation project, students will be given design assignments that drive them to (re)develop a complex urban location with both residential and non-residential elements.	
Study Goals	<p>The assignment aims at drawing up a development plan for the location. The students, through this exercise, will play the roles of local authorities and private actors as well as third parties of the area and negotiate in their respect roles to reach an optimal solution. Students will conduct feasibility analysis of a particular real estate objective at the portfolio and object scale.</p> <p>This unit will equip students with sufficient skills to deal with the assignment in the simulation with a series of lectures and sessions of fieldwork, role assistance and group supervision. Students will learn about the context, goal, actors and means of realisation related to each phase of the urban area development cycle. In this process, students have to consider how to make a balance between market demand, spatial quality requirement with available means.</p>	
Education Method	<p>The unit aims to enable students to:</p> <ul style="list-style-type: none"> - understand the changing context of global and local environment and economic, social and cultural elements which contribute to various urban problems - understand the context, content, players and means of implementation during the cyclic phases of urban area development; identify positions, objectives and means as well as strategies of involved parties in different phases - analyze the social-economical and urban context as well as the status and function the area can possibly achieve in the future - set up functional programs for the area in question; identify spatial possibilities and, the feasibility and financial consequences of investments; develop institutional and financial plans for different phases in order to manage and oversee the development design and implementation process, thereby effectively integrating the input of the various actors in the project - conduct feasibility studies of real estate portfolio strategy with involved and/or potential stakeholders and the cost-benefit analysis of a particular building block at the object level - integrate multidisciplinary knowledge through teamwork, negotiate and communicate with different parties, present project results and reflect the development process with an analytical report 	
Literature and Study Materials	<p>The program of The Urban (Re)development Game comprises three parts:</p> <ul style="list-style-type: none"> - Theory: the knowledge of the theory on managing urban development is acquired through lectures and literature study - Practicum: the practice skills are acquired through role-playing in a management game, with support from role lectures, supporting literature and consultation provided by role assistance and group supervision. Students are asked to work on a master plan of a specific location and then examine its feasibility plan of a particular role at portfolio and object level. -Real estate finance: the knowledge of finance is acquired through lectures and literature study <p>The compulsory literature for Theory is:</p> <p>Franzen, A., Hobma, F., de Jonge, H. and Wigman, G (eds) (2011) Management of Urban Development Processes: governance, design, feasibility. Amsterdam: Technpress.</p> <p>Adams, D. & S. Tiesdell (2012), Shaping Places: Urban Planning, Design and Development. London: Routledge.</p>	
Assessment	<p>Other digital compulsory and supporting literature is available from the blackboard and is updated yearly.</p> <p>The result will be determined by:</p> <ul style="list-style-type: none"> - the theory component, assessed through individual 3,5 hour exam - the practice component, assessed through the quality of design assignment, the quality of presentation performance, the quality of argument and reflection in the end report - The finance component, assessed through assignment and exam 	

Exam Hours	Theory: 3,0 hours
Special Information	The maximum marking period is 10 work days.
Period of Education	Quarter

AR0681	Heritage and Architecture Design Studio: Research and architectural design	12
Responsible Instructor	Ir. W.L.E.C. Meijers	
Responsible Instructor	Prof.ir. W. de Jonge	
Course Coordinator	Ir. W.L.E.C. Meijers	
Instructor	Ir. W.L.E.C. Meijers	
Instructor	Dr. S.A. Stroux	
Instructor	Ir. A.C. de Ridder	
Instructor	Ir. W. Willers	
Contact Hours / Week x/x/x/x	8 hours per week	
Education Period	3 4	
Start Education	3	
Exam Period	none	
Course Language	English	
Course Contents	The chair of Heritage & Design is concerned with re-designing and researching buildings of significance in cultural-historical context. In this studio the cultural, historical, societal and urban context of a built structure are analysed and interpreted in relation with architectural and technical features. Historical development, urban context, typology, materialisation, technical elaboration and related literature are the main issues in a synchronic method of analysing and re-designing. Students individually create a re-design that shows a meaningful translation of an intervention strategy into the spatial, functional, urban, material and technical design. The design choices are based in an understanding in relation to cultural value.	
Study Goals	Upon completion of the Master 2 studio the student is able to: - draw conclusions from analyses and present these in an academically substantiated and comprehensive way, - define a relevant design brief and create an architectural redesign for a building or ensemble that he/she has chosen as an etude, - apply professional knowledge and design tools related to architecture, building technology and cultural value, - focus on moral sensibility, analysis, creativity and judgement skills regarding architectural ethics - explain and reflect on meaning and design development with relevant presentational means - communicate design ideas at an advanced level through verbal presentations, visual and written media.	
Education Method	Design coaching in studio during educational weeks. The design studio features individual and group tutorials, and study specific to the design project.	
Literature and Study Materials	To be announced via the tutor and/or the coordinator and/or Brightspace.	
Assessment	Presentations will be held during the semester and a final presentation at the end of the semester. Drawings, texts, models.	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Q1 / Q2 / Q3 / Q4: semester weeks 1.6 - 2.10 / 3.6 - 4.11	
Leerstoel	Heritage & Architecture	
Maximum aantal deelnemers	45	

AR0896	Van Gezel tot Meester		21
Responsible Instructor	Ir. E.J.G.C. van Dooren		
Responsible Instructor	L.A.M. Willekens		
Course Coordinator	Ir. E.J.G.C. van Dooren		
Contact Hours / Week x/x/x/x	160 hours per semester		
Education Period	1 2		
Start Education	1		
Exam Period	none		
Course Language	Dutch		
Course Contents	<p>Didactiek in ontwerpprojecten In een stage (Bachelor eerste jaar) leer je onder supervisie het vak van ontwerpbegeleider; de ervaring en problemen die je opdoet in de stagegroep kun je terugkoppelen in de onderwijsgroep. In enkele werkcolleges wordt onderzocht hoe studenten te begeleiden in het leren ontwerpen.</p>		
Study Goals	<p>Ontwerpvaardigheid en ontwerpproces In een aantal ontwerp oefeningen wordt het ontwerpproces expliciet onderzocht. Door het ontwerpproces enkele keren te doorlopen en specifiek te bestuderen wordt inzicht verkregen in meer algemene principes tijdens het ontwerpen en de eigen, individuele inbreng; ook valkuilen kunnen zo aan het licht komen. Zoals een topsporter op onderdelen en het geheel traint om tot meesterschap te komen, zo kan een ontwerper ook zijn eigen ontwerpproces trainen. Door het kanaliseren van gewoontes en het bewust worden van essentiële ontwerpmomenten kom je tot meesterschap in het ontwerpproces.</p>		
Study Goals	<p>De student is in staat een coherent, betekenisvol, uitgewerkt, juist en innovatief ontwerp te maken en onderzoek te doen - op hoofdlijn en in details - op Msc 2 niveau.</p>		
Study Goals	<p>Specifiek voor deze cursus: de student 1. heeft inzicht in het (eigen) ontwerpproces en in het (ontwerp)docentschap 2. is in staat korte ontwerp opdrachten te doen en heeft de basisvaardigheden als (assistent) ontwerp docent 3. is in staat een kort onderzoek te doen naar het (eigen) ontwerpproces en de aspecten van het ontwerpdocentschap</p>		
Education Method	<p>- stage als assistent-begeleider in een eerstejaars ontwerpproject - ontwerponderwijs op atelier (meerdere ontwerp opgaves) - enkele werkcolleges</p>		
Education Method	<p>Kennis en toepassing zijn tijdens het leren met elkaar geïntegreerd. De cursus is opgebouwd uit een groot praktijk gedeelte (ontwerpen / begeleiden) met op een aantal momenten compacte input van kennis en theorie.</p>		
Education Method	<p>Het ontwerp onderwijs vindt in principe plaats op dinsdag en vrijdag middagen, en een aantal werkcolleges op woensdagmiddag - wijzigingen in verband met de stage voorbehouden De stage vindt plaats in het tweede kwartaal.</p>		
Assessment	<p>Didactiek stageverslag waarin opgenomen een observatie en een reflectie (9 studiepunten). Ontwerpresultaten en reflectie op ontwerpproces (12 studiepunten).</p>		
Special Information	The maximum marking period is 10 work days.		
Period of Education	Semester		
Maximum aantal deelnemers	hangt af van beschikbare stageplaatsen		

AR2AD010	MSc2 Dwelling design studio 'Global Housing'	12
Responsible Instructor	Ir. H.A.F. Mooij	
Course Coordinator	P.S. van der Putt	
Instructor	Prof.ir. D.E. van Gameren	
Education Period	3	
	4	
Start Education	3	
Exam Period	none	
Course Language	English	
Course Contents	The MSc 2 AR2AD010 Global Housing Studio focuses on the worldwide issue of affordable mass housing schemes. The assignment involves designing a housing project, with the aim of providing solutions that cater for the creation of socially and ecologically sustainable urban environments as an alternative to current practices of large-scale developments, public and private, based on models. Participating in the studio requires a site visit to Ahmedabad, India of approximately two weeks.	
Study Goals	<p>Learning Goals MSc 1/2 GLOBAL HOUSING</p> <p>After completion of this course the students is able to:</p> <ol style="list-style-type: none"> 1. Recognise and explain morphological and typological qualities of urban housing neighbourhoods . 2. Formulate a design strategy for affordable housing in relation to densities, multiple user groups, access & circulation, privacy & community and patterns of daily life. 3. Design and develop an urban plan for affordable housing on a proposed site. 4. Design and develop an urban housing neighbourhood accomodating the various relations of the design strategy. 5. Design and develop different dwelling types in relation to specified needs and usability. 6. Identify and explain the qualities of the proposed design in relation to project references and experience. 7. Identify appropriate building techniques and construction systems to be employed as part and parcel of the design proposal. 8. Produce meaningful visual and physical outputs to communicate the project to an audience of experts. 	
Education Method	Tutoring of the design progress in the design studio. Workshop week	
Assessment	Examination takes place in the form of a mid-term and final oral presentation of design and analysis in drawings and images, followed by an oral examination in questions and answers.	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Education starts in week 3.6 and ends in week 4.11	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR2AI010	Interiors Buildings Cities MSc2 Design Project	12
Responsible Instructor	Prof. D.J. Rosbottom	
Course Coordinator	Ir. S. Pietsch	
Instructor	Ir. M.E. Stuhlmacher	
Instructor	Ir. L.M.M. de Wit	
Instructor	M. Pimlott	
Instructor	D.H.G. Somers	
Instructor	Ir. S. Pietsch	
Instructor	Ir. J.S. Zeinstra	
Instructor	Ir. drs. E.P.N. Schreurs	
Instructor	S.S. Mandias	
Instructor	Prof. D.J. Rosbottom	
Contact Hours / Week	4 hours per week	
x/x/x/x		
Education Period	1	
	2	
	3	
	4	
Start Education	1	
	3	
Exam Period	none	
Course Language	English	
Summary	The Chair of Interiors Buildings Cities is concerned with making buildings, in places, for people. It conceives of the city, at each scale, as a work of architecture and, hence, the responsibility of the architect. This developing discussion of the chair is contextualised through an annual theme.	
	The MSc2 course, Thinking through Making, encompasses design research investigations into thinking about, making and representing architecture, up to and including 1:1 scale.	
Course Contents	The MSc2 programme is a platform for special research and design projects proposed by members and associates of the Chair of Interiors Buildings Cities. At the heart of each of these projects, renewed every semester, is a research question or opportunity that yields possibilities for responses through design, and realised in tangible artefacts or models.	
Study Goals	Upon completion of the Master 1, 2, 3 & 4 studio trajectory the student:	
	- Has developed the skills in architectural design satisfying both aesthetic and technical / functional requirements. During the trajectory the complexity of the architectural design increases leading to a level fit for architectural practice and a training period for professional accreditation as architect.	
	- During this trajectory skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology and human sciences.	
	- Additionally, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and society's needs, including environmental aspects.	
	- During Master 1, 2, 3 & 4 process skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing.	
	- Together with the training with regard to aspects of building technology, during the Master 1, 2, 3 & 4 process skills are acquired to incorporate an understanding of the design process with regard to structural design, materialization of buildings and interiors, comfort and climate design.	
	A specific description of the aims of the studios will be published in the Studio Manual, to be distributed at the beginning of the course.	
Education Method	The design studio features individual and group tutorials, and study specific to the design project as well as several dedicated thematic exercises, internal lectures and seminars that pertain to and inform the subject.	
Literature and Study Materials	to be announced upon beginning of the course	
Assessment	Assessment will focus on the research work undertaken by the individual student within the set theme; the specific research questions raised within; the specific design study that responds to those questions; the representation of that study in a physical artefact made by the student.	
	Products: models up to 1:1 scale; drawings / texts if applicable	
	The project will be assessed on:	
	- the position that is formulated with regard to the brief and its context; the contribution to a collective discourse.	
	- the appropriateness of the intervention with respect to the assignment; the feasibility and translatableability of the idea into a physical manifestation.	
	- aesthetic and technical / functional qualities; the elaboration throughout the respective scales	
	- the quality of the presentation, the products and the argument.	
	- the consistency and coherence and development of the students work during his / her process	
Special Information	The maximum marking period is 10 work days.	
Period of Education	The project starts in week 6 of the first quarter and extends towards the end of the semester. An introduction meeting will take place at the beginning of the semester.	
Leerstoel	Interiors Buildings Cities	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR2AP012	MSc2 Public Building Design Studio	12
Responsible Instructor	Dr.ir. M.G.H. Schoonderbeek	
Responsible Instructor	Dr.ir. S. Komossa	
Course Coordinator	S. Milani	
Course Coordinator	Ir. A.M.F. van Dam	
Instructor	Ir. F. Geerts	
Instructor	Dr.ir. S. Komossa	
Instructor	Ir. M.J. de Haas	
Instructor	Ir. A.M.F. van Dam	
Instructor	Dr.ir. M.G.H. Schoonderbeek	
Instructor	S. Lee	
Instructor	O.R.G. Rommens	
Instructor	A.S. Alkan	
Instructor	N.E.A.I. Deboutte	
Instructor	N. Marzot	
Instructor	S. Milani	
Contact Hours / Week	8 hours per week	
x/x/x/x		
Education Period	3	
Start Education	4	
Exam Period	3	
Exam Period	none	
Course Language	English	
Course Contents	<p>A-PB's MSc. 2 studio focuses on the conditions under which architecture operates through the limits of global urbanization and emerging contexts, as well as interdisciplinary processes that blur disciplinary bounds. These conditions allow for elaboration on formal expressions of the architects position in regard to both the disciplinary context and the breach of the disciplinary boundaries themselves.</p> <p>Architecture distinguishes itself from mere building: it aspires to accomplish above and beyond meeting necessities and to provide something out of ordinary. We can surmise that architecture stipulates "exceptions" that set itself apart from everyday built environment. Therefore, architecture deals with specificity rather than generality.</p> <p>A-PB's MSc. 2 design studio aims to initiate various design agendas from the specificities and/or exceptionalities of a particular material culture of a place arriving at a fully elaborated architectural design. The studios hinge around the specificities through which the students are confronted with singular aspects of different situations. By elaborating on the core issues and eventually defining their own design positions, students are expected to implement their research into design practice within the collective framework.</p> <p>The sites and urban conditions that vary each year provide testing ground for diverse scales of inquiry, intervention, analysis and cultural perspective. Architectural means, instruments and techniques provide operative interface but also focus on a set of precisely delineated a priori as compositional constraints. Hence design research is exercised by and within the instruments, techniques and languages of architectural design.</p> <p>The cities of the design groups will be announced shortly before the enrollment period starts. Each enrolled student will have an opportunity to choose the group of his/her preference.</p> <p>Each city-group requires an excursion abroad. The excursion may cost around 400 or more per person for transport, lodging and other expenses depending on the location.</p>	
Study Goals	<p>Learn to design an architectural object that meets aesthetic as well as technical and functional requirements.</p> <p>Understand the relationship between architectural work and its context, as well as the ways to relate architectural experimentation to culturally conducive urban environment.</p> <p>Understand the role of architects and architecture in society.</p> <p>Develop the ability to clarify a design project to others by means of images, spoken and written words.</p>	
Education Method	<p>Studio: 112 hours Lectures: 8 hours Independent study: 216 hours</p>	
Assessment	<p>Studio attendance & participation</p> <p>Excursion participation</p> <p>Mid-term (week 4.2) and final (week 4.10) reviews</p> <p>(Specific weeks & dates of the presentation may be subject to change according to the official academic calendar of the university.)</p>	
Special Information	<p>The studio work may include and be supplemented by charrettes, informal/intermediate reviews, as well as by supplementary lectures and workshops.</p> <p>Shortly prior to the beginning of the semester, each student will have an opportunity to choose and sign up for one of the city-groups. The student must select and express the first, second and third preferences. When the preferences are missing, the student will be randomly assigned to a city-group.</p> <p>After the city-studio selection process, each student will also be given an opportunity to switch places 1:1, if necessary and at the discretion of the studio instructors.</p> <p>During the first half of the semester, until the midterm review, the students will work in groups.</p> <p>The maximum marking period is 10 work days.</p> <p>For more information, contact: pb-edu-bk@tudelft.nl</p>	

Period of Education	Semester
----------------------------	----------

AR2AT020	Agential Materialism Architecture Theory Design Studio	12
Responsible Instructor	Dr.ir. H. Sohn	
Course Coordinator	Dr.ir. H. Sohn	
Instructor	Dr.ir. A. Radman	
Instructor	Dr.ir. H. Sohn	
Instructor	Dr.ir. S. Kousoulas	
Instructor	Dr. A. Altes Arlandis	
Contact Hours / Week x/x/x/x	8 hours per week	
Education Period	4	
Start Education	4	
Exam Period	none	
Course Language	English	
Required for	This course is an elective choice for the required MSc2 studio credits.	
Expected prior knowledge	Students with interest and motivation in theoretical and conceptual aspects of architecture design are encouraged to join this studio.	
Course Contents	<p>The Architecture Theory Studio Agential Materialism is a design studio with a strong theory component that engages architecture as a material-discursive practice, in which the conceptual and the non-conceptual (theory & design) are regarded as fully agential and relational: they happen and emerge in the same space-time-matter continuum. In our studio we will investigate conceptual terms such as matter, objects, things, bodies, as well as the notions of process, change, emergence and agency, among many others, as a means to investigate their application and potential for architecture design. Our studio explores the power of concepts as methods for practice, and experiments with the affective capacities of matter as fundamental in the genesis of form.</p> <p>The thematic and design assignments of our studio vary, but always depart from actions rather than programmatic or functional prerequisites, foregrounding the potentials of architectural, material and spatial agencies involved in the design process.</p> <p>This studio is highly experimental and hands-on in regards to the material aspects of theory as practice. It welcomes students who are inclined to explore unfamiliar (yet exciting) themes, raise interesting questions and problems, and experiment with ideas and matter to make their design practice and skills more meaningful.</p>	
Study Goals	<p>After completion of this design studio the participants will:</p> <ul style="list-style-type: none"> have a solid base of knowledge on recent literature in the humanities and the social sciences and their relation to architecture practice and theorization have acquired solid knowledge-base to discern theoretical, analytical and synthetic methodologies and their application in the design process. have developed a deeper understanding of the relationships, potentials and interactions of different agents involved in any design process. have developed experimental and innovative design skills through conceptual, abstract and theoretical thinking. have experimented with different media and tools as aids for the communication of architectural proposals and ideas. have acquired research skills, and will be able to apply these in reflections and theoretical argumentation of their design projects. will have acquired understanding of the societal, cultural, technological and ethical dimensions of a design process that includes human and non-human actors alike. 	
Education Method	<ul style="list-style-type: none"> monthly lectures and weekly theory seminars discussion on related themes weekly design studio reviews presentations (interval & final) with visiting critics 	
Course Relations	<p>This course is compatible with the Architecture Theory Thesis course (AR2AT030). We encourage students to follow both courses in the same semester.</p> <p>Students wishing to participate in both courses are advised to register in the enrolment period for the Spring semester.</p>	
Literature and Study Materials	<p>Study material, reading lists and other relevant course-related literature will be made available to the students prior to the first meeting.</p>	
Prerequisites	<p>Students wishing to participate in this course are strongly recommended to have completed the necessary credits for MSc1.</p>	
Assessment	<ul style="list-style-type: none"> methodology development architectural design proposal theoretical reflection 	
Special Information	<p>This course is highly compatible with the Architecture Theory Thesis (AR2AT030). Students wishing to follow this studio are advised to enrol in both courses. Please note that the courses have different education periods (Q1/3 & Q4 respectively)! For questions please contact our student assistants or the academic coordinator at AT-MSc-BK@tudelft.nl</p>	
Elective	Yes	
Tags	<ul style="list-style-type: none"> Abstract Adventurous Design Group work Intensive Process Research Methods 	
Period of Education	This studio is offered only in Q4 (Spring term) of each academic year.	
Leerstoel	Architecture Theory Chair	
Maximum aantal deelnemers	20 students	

AR2CP010	MSc2 Complex Projects Design and Research Studio	12
Responsible Instructor	Prof.ir. C.H.C.F. Kaan	
Course Coordinator	M. Triggianese	
Contact Hours / Week x/x/x/x	80 hours per Quarter	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	BSc and MSc 1 completed	
Course Contents	<p>AMBITION In Master 2 we focus on Cities. This research and design studio promotes broad speculation, independent thinking, collective work with the aim of positioning architecture into a broader social, cultural, political, and economic context. Through the various themes, students are exposed to the versatile layers of the city, while simultaneously expected to engage their observations with daily studio work. Understanding the hard and soft layers, that actually define the values of a contemporary city, can lead towards ambitions to follow. After forensic analysis of the layers, a new framework will be developed for the project area that will be extracted and developed in detail.</p> <p>EVALUATION Evaluations will be based on the research approach, dedication, commitment, effort and improvement of the team in the investigation of the City (and the project area). Concrete aspects for evaluation are: research work, clarity of the problem statements, originality of the final presentation. Please contact the course coordinator for the specific programme / cities of the semester.</p>	
Study Goals	<p>The student: Has developed the skills in architectural design satisfying both aesthetic and technical/functional requirements. During the trajectory the complexity of the architectural design increases leading to a level fit for architectural practice. During this trajectory, skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology and human sciences. Additionally, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and societies needs, including environmental aspects. During MSc1, 2, 3 & 4 process skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing.</p>	
Education Method	Besides studio program students are expected to fully engage with events and people which the sites have to offer. Workshops, lectures, tours and travels are included in the studio programme.	
Assessment	Midterm presentation including research, argument and concept. Final presentation with posters and research booklet. Additional visualisation tools can be used, such as video, reportage, models.	
Special Information	As part of the Complex Projects objective, the search for definition of city guides the Design and Research studio, 'IN Cities' studio in its most direct way. Please contact the studio coordinator to know this year's case studies.	
Period of Education	Semester	
Leerstoel	Complex Projects, department of Architecture	
Minimum aantal deelnemers	12	
Maximum aantal deelnemers	16	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR2FM010	The Delta Shelter	12
Responsible Instructor	P.A. Koorstra	
Course Coordinator	P.A. Koorstra	
Education Period	3 4	
Start Education	3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	BSc and Master 1	
Course Contents	<p>The assignment is to design a small project in a Delta environment; a dynamic and natural surrounding on the border of water and land.</p> <p>The infinity of the location and the constant changing conditions invite to research the meaning of boundaries and the integration of the landscape in the design. The experience of the specific and poetic qualities of this environment will be one of the explicit themes in this course; the contradiction between the human scale and the unrestricted landscape, the influence of wind and tide, the flora and fauna and the position of human within this often vulnerable ambience.</p> <p>The role, impact and contribution of architecture in such places is part of the research in this assignment. More specific the typology and manifestation of the architecture will be discussed and developed on the basis of the design proposals. The ethics and aesthetics of architecture will be discussed regarding questions as; What are the necessary conditions for architecture to give a satisfying contribution to this environment? Is it inevitable that architecture is a disturbing factor, can it only be of temporary presence, or can architecture contribute to the appreciation and preservation of these kind of environments?</p> <p>The project will be developed by using physical scale models, hand sketches and text during all the phases of the design process; the analysis, design and presentation. The aim of this method is to stimulate the creative process by using the physical model and drawing as a feedback and inspiration tool to develop the concept into a design.</p>	
Study Goals	<p>-The student will gain competence is conducting design research and research-by-design by using physical models and hand drawings as a tool throughout the design process.</p> <p>-The student will gain insight in collaborating and communicating by making active use of various scale models to present the design in all its aspects; the architectural composition, materialisation and integration of construction.</p> <p>-The student will be able to communicate his contemplations and reflect on the role and position of the architect in this assignment.</p>	
Education Method	lectures and design studio format. Weekly assistances in groups as well on individual basis.	
Assessment	<p>Assesment on the basis of process, analysis, documentation and (re)presentation of the end result. A brief reflective statement of max 450 words is part of the assesment.</p> <p>Presentation will contain a variety of physical models, drawings, photographs and text.</p> <p>The products should give a clear insight in spatial design, the construction and the relation and meaning of the design towards its environment.</p> <p>The student has achieved a sufficient result on scale 1 to 10 with 6, has the possibility to take a resit with a mark between 5 and 6 and failed with 4,9 or minor. Resit has to be completed within 2 weeks after completion the studio.</p>	
Special Information	coordinator	
Remarks	A site visits can be part of the studio	
Period of Education	Q3 & Q4, 15 weeks, starting in week 3.6	
Leerstoel	Form & Modelling Studies, Architecture	
Minimum aantal deelnemers	12	
Maximum aantal deelnemers	32	

AR2MET010	Transdisciplinary Encounters	12
Responsible Instructor	Dr.ir. P.J. Teerds	
Responsible Instructor	Dr.ir. K.M. Havik	
Course Coordinator	Dr.ir. P.J. Teerds	
Instructor	Dr.ir. P.J. Teerds	
Contact Hours / Week x/x/x/x	4 hours per week	
Education Period	4	
Start Education	4	
Exam Period	none	
Course Language	English	
Course Contents	<p>The field of architecture holds a broad set of research and design methods, but also has the capacity to productively engage with approaches and perspectives from other fields that deal with the built environment such as literature, arts, cinema, philosophy, psychology, and social sciences. In contemporary architectural practice several architects (Steven Holl, Peter Zumthor, Bernard Tschumi, Rem Koolhaas) have used these productive encounters and exchanges with other fields to reorient architectural analysis and design.</p>	
	<p>The Msc2 studio Transdisciplinary Encounters offers a site of exploration for students interested to pursue the possibilities of the encounter between the architectural practice and other disciplines. These may be artistic disciplines, providing instruments such as literary description, narrative, montage and scenario writing, or disciplines from social sciences, providing fieldwork techniques related to social spatial practices and user behaviour. The studio encourages students to develop experimental methods of analysis and design in order to obtain new design solutions.</p>	
	<p>This studio is dedicated to the exploration of a broader scope upon the built environment by using encounters and exchanges with methods from other disciplines. It focuses on the implementation of investigative and creative methods from these fields, particularly focussing on site research and how such new methods and ways of looking can be implemented within the field of architecture.</p>	
	<p>The studio exercise will depart from specific and extensive fieldwork methods, and aims to carry out a site-specific analysis with experimental techniques. Results from the site analysis will be brought to the field of architecture step by step, in order to lead to architectural or urban strategies of intervention.</p>	
Study Goals	<p>the student:</p> <ul style="list-style-type: none"> -becomes acquainted with approaches from other disciplines such as literary, artistic and cinematographic practices, or social science disciplines -learns to conduct field work on site -learns to use and develop experimental methods of analysis and design -implements investigative and creative methods from these fields to conduct site research and develop urban or architectural strategies for a given site 	
Education Method	<p>Combined seminar and studio; in-situ fieldwork. Through experimental in-situ fieldwork the studio will develop tools in order to understand and address the issue of the public realm of a specific city, area or neighbourhood. To do so, during the studio students will adopt and adapt techniques from different other scientific or artistic fields that adjust the profession of architecture, like social geography, anthropology, sociology, and philosophy or sculpture, literature, and cinema. Through these investigations, detailed quantitative and qualitative mappings can be drawn, based on statistical analyses, socio-historical research and in-depth interviews. Depending on the specific approach of the studio, these techniques can be combined with particular drawing techniques such as the section, the softmap and the collage. The site research will thus result in evocative and speculative drawings, models, texts, and films. In a concise presentation the students are requested to evoke their projects and visions on a larger urban scale, as well as to propose site-specific interventions.</p>	
Assessment	<p>For this elective course, the process and the development of appropriate tools for fieldwork and the students reflection upon these methods and the results of the fieldwork will be assessed through mid-term presentations and a final presentation. Criteria are focussing on the consistency of the project: the relation between methods, research findings and urban or architectural strategy.</p> <p>The students are expected to bring their work together in a collective book, thereby showing the broad perspective of site investigations and developed strategies. For the final presentation, representatives from the given site and disciplinary field will be invited as guest critics.</p>	
Elective	Yes	
Tags	Research Methods	
Period of Education	Quarter	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

MSc1 Design Projects

AR1AD011	Dwelling Design Studio: 'The Netherlands'	12
Responsible Instructor	Ir. P.S. van der Putt	
Course Coordinator	Ir. P.S. van der Putt	
Instructor	Ir. P.A.M. Kuitenbrouwer	
Instructor	Ir. O. Klijn	
Contact Hours / Week x/x/x/x	112 hours per semester	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Course Contents	<p>Students of the Dutch Housing Studio design a residential complex in an urban environment in the Netherlands. The design is accompanied/preceded by research into the design assignment and the specific topics of the studio.</p> <p>Each semester the design assignment may be different from the one before. Oftentimes there are two studio options (however, the chair reserves the right to cancel an option if there is a lack of interest from students).</p> <p>Though topics may vary from one semester to the next, at the core of each studio lies the design of dwellings and of the dwelling environment, complemented by research and literature study. Design work is done individually, while some of the research may be performed in teams.</p> <p>Topics of the Studio may include (but are not limited to) the inclusive city, work-live combinations, projects for specific target groups, and small scale interventions. More specific information about the design assignment of the upcoming semester can be found on the website and at the Master-information meetings that take place twice a year.</p> <p>All MSc 1 Dwelling students will take part in a site excursion as well as a workshop or master class revolving around the theme of the studio. The studio is not available for MSc 2 students. MSc 1 students are required to also enrol in Architectural Studies (AR1AD030) and Architectural Reflections (AR1AD040).</p>	
Study Goals	<p>Upon completion of the course the student is able to</p> <ul style="list-style-type: none"> design a sketch version of an urban plan for a given area in terms of massing, program and zoning. design a complex residential building with additional functions, subscribing to the functional demands of the brief and the spatial, structural, technical and aesthetic requirements of architecture. design several dwellings that suit functional demands of their respective target groups. perform research of precedent projects and to demonstrate their impact on his/her own design. develop and compare design alternatives. critically reflect on the assumptions and starting points of the brief. convey his/her design ideas by way of (oral) presentations. critically reflect on his/her own design process. 	
Education Method	Studio: 70 hours Self-study: 266 hours	
Assessment	<p>Presentations will be held throughout the semester; assessment by way of final presentations at the end of the studio. Exact requirements to be announced at the start of the studio.</p> <p>The final grade (F) for AR1AD011 will be a weighted average of the Architecture grade (A) and the Building Technology grade (BT), such that $0,8 \times A + 0,2 \times BT = F$. Both A and BT will be rounded to half or whole points. The final grade will be rounded to one decimal place.</p>	
Special Information	The maximum marking period is 10 working days.	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1AE010	EXTREME architecture	12
Responsible Instructor	Prof.dr.ing. U. Knaack	
Course Coordinator	Ir. R. Schroën	
Contact Hours / Week x/x/x/x	12 hours per week	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Course Contents	<p>The project is about building in a extreme situation, in respect to climate, location and function. Essence is the interaction between the extreme circumstances, the technical solutions, and the architecture. Extreme circumstances do request technical solutions which will be the starting point for the design development. The designer has to direct the 'engineer questions and answers', towards the articulation of the form which is based on integration of aesthetic and technology.</p>	
Study Goals	<p>For this project we will be focussing on the Maldives: a group of atolls which is expected to disappear below the rising sea level. How can we use architecture and engineering to preserve this community?</p>	
Education Method	<p>"Die Architektur des 21 Jahrhunderts hat ihre Unschuld verloren, Gebaude müssen etwas leisten" Stefan Behnisch.</p>	
Assessment	<p>In the end the student is able to understand technical solutions, to reflect on them, to applicate them and to transform them. And the student is able to design a coherent design result.</p>	
Special Information	<p>Upon completion of the MSc1, 2, 3 & 4 studio trajectory the student:</p>	
Period of Education	<p>Has developed the skills in architectural design satisfying both aesthetic and technical/functional requirements. During the trajectory the complexity of the architectural design increases leading to a level fit for architectural practise.</p>	
Course evaluation	<p>During this trajectory skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology and human sciences.</p>	
Education Method	<p>Additionally, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and societys needs, including environmental aspects.</p>	
Assessment	<p>During MSc1, 2, 3 & 4 process skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing.</p>	
Special Information	<p>Together with the training with regard to aspects of building technology, during the MSc1, 2, 3 & 4 process skills are acquired to incorporate an understanding of the design process with regard to structural design, materialisation of buildings, comfort and climate control.</p>	
Period of Education	<p>In the end the student is able to design a healthy coherent building in extreme conditions with a focus on technical solutions: the student is able to apply, reflect and transform principles concerning climate, construction and structure.</p>	
Course evaluation	<p>Design project</p>	
Assessment	<p>The design result including the aspects structure, climate and envelope.</p>	
Special Information	<p>The maximum marking period is 10 work days.</p>	
Period of Education	<p>Semester</p>	
Course evaluation	<p>For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/</p>	

AR1AI010	Interiors Buildings Cities MSc 1 Design Project	12
Responsible Instructor	Prof. D.J. Rosbottom	
Course Coordinator	Ir. S. Pietsch	
Instructor	Ir. M.E. Stuhlmacher	
Instructor	Ir. L.M.M. de Wit	
Instructor	M. Pimlott	
Instructor	D.H.G. Somers	
Instructor	Ir. S. Pietsch	
Instructor	Ir. J.S. Zeinstra	
Instructor	Ir. drs. E.P.N. Schreurs	
Instructor	S.S. Mandias	
Instructor	Prof. D.J. Rosbottom	
Contact Hours / Week	4 hours per week	
x/x/x/x		
Education Period	1	
Start Education	2	
Exam Period	3	
Course Language	English	
Summary	<p>The Chair of Interiors Buildings Cities is concerned with making buildings, in places, for people. It conceives of the city, at each scale, as a work of architecture and, hence, the responsibility of the architect. This developing discussion of the chair is contextualised through an annual theme.</p>	
Course Contents	<p>The MSc1 course, The House in the City, considers detailed material and spatial programmes for proto-typical city buildings with the intention of nurturing architectural sensibilities in students that are attuned to context, users, relations, appearances, spaces and interiors, materiality, and construction.</p>	
Study Goals	<p>MSc 1 is structured as a series of parallel studios, run by a dynamic mix of practitioners and academics and collectively concerned with interpretations of a common theme, the House in the City. Understood ambiguously, as in the German Haus, the concerns of the course are not the representative monuments of culture, nor the private houses of individuals. Instead, projects explore those buildings that stand between, housing our collective urban life and oscillating, in our consciousness, between foreground and background. Carefully wrought, spatially rich, generous and adaptable, such buildings have the capacity to evolve over time and to engage in a territory that might encompass both extended domestic and intimate public life. As discrete elements, subservient to a larger whole, they play small but significant roles in structuring urban fabric and defining urban space, simultaneously taking pleasure in the heterogeneity of the contemporary city and bringing it into order.</p> <p>Through individual projects, each studio addresses how such city houses might be made, experienced and inhabited, in time and space and in response to the particularities of place. Through careful drawing and iterative making, their individual characters emerge in a welcoming interior, through a moment of figuration or in the refinement of a façade.</p> <p>The contents of the individual studios will be published at the beginning of the semester. Students are asked to indicate their preference for one of them. Usually the studios include a 2-3-day excursion to a location relevant to the project. The corresponding information will also be communicated at the start of the semester.</p> <p>The MSc1 Design Project (Ar1Ai010) is conceived in conjunction with the Fundamentals course (AR1Ai040). Students are required to enrol to both courses.</p>	
Education Method	<p>Upon completion of the Master 1, 2, 3 & 4 studio trajectory the student:</p> <ul style="list-style-type: none"> - Has developed the skills in architectural design satisfying both aesthetic and technical / functional requirements. During the trajectory the complexity of the architectural design increases leading to a level fit for architectural practice and a training period for professional accreditation as architect. - During this trajectory skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology and human sciences. - Additionally, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and society's needs, including environmental aspects. - During Master 1, 2, 3 & 4 process skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing. - Together with the training with regard to aspects of building technology, during the Master 1, 2, 3 & 4 process skills are acquired to incorporate an understanding of the design process with regard to structural design, materialisation of buildings and interiors, comfort and climate design. <p>A specific description of the aims of the studios will be published in the Studio Manual, to be distributed at the beginning of the course.</p>	
Literature and Study Materials	<p>The design studio features individual and group tutorials, and study specific to the design project as well as several dedicated thematic exercises, internal lectures and seminars that pertain to and inform the subject.</p> <p>A characteristic working method of the Chair is the building of physical models of varying scales in which ideas about the design project are tested and materialized.</p> <p>To be announced upon beginning of the course</p>	
Assessment	<p>The design studio concerns the development of an architectural project on all scale levels, from its urban setting to its materiality and elaboration of its details. The project will be assessed during an intermediate, pre-final and final presentation on its:</p> <ul style="list-style-type: none"> - the position that is formulated with regard to the brief and its context - the appropriateness of the intervention with respect to the assignment - aesthetic and technical / functional qualities - the elaboration throughout the respective scales - the integration of the disciplines included - the quality of the presentation, the products and the argument. - the consistency and coherence and development of the students work during his / her process <p>The products to be assessed include the design proposal represented through drawings, models and text; the project journal and</p>	

	the portfolio.
	The final grade consists of partial grade of 80% for Architecture and 20% for Building Technology. Both grades need to be sufficient for the student to pass.
Special Information	The maximum marking period is 10 work days.
Period of Education	Semester
Leerstoel	Interiors Buildings Cities
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/

AR1AR011	Heritage and Architecture Design Studio: Architectonic Design	12
Responsible Instructor	Ir. W. Willers	
Course Coordinator	Ir. W. Willers	
Instructor	Ir. A.W. Hermkens	
Instructor	Ir. W. Willers	
Contact Hours / Week x/x/x/x	8 hours per week	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Summary	The design assignment focuses on the intervention at existing buildings or ensembles to meet requirements of contemporary and future use. The design process will be guided by exploring design possibilities and architectural consequences of the design.	
Course Contents	<p>The object of this Heritage & Architecture studio is the architectural design for the re-use of a building or building-ensemble to meet requirements of contemporary and future use.</p> <p>A transformation framework will be made by the interpretation of the analysis of the urban context, the building and the program requirements. Various aspects of designing in existing built structures are investigated by studying reference projects and literature.</p> <p>By working on different scale-levels a coherent design will be made. At atelier meetings different aspects like relation existing new, urban context, functionality, spatial quality, technical aspects, material aspects will be discussed.</p> <p>Different presentations will help students to develop their presentation skills.</p> <p>The current debate of transformation and intervention with topics like authenticity, sustainability, layers of history, and so on is very present during this course on every single scale.</p>	
Study Goals	<p>Upon completion of the Master 1 design project the student is able to:</p> <ul style="list-style-type: none"> - interpret cultural values on urban, architectural and technical scale and create a transformation framework, - translate a transformation framework to a design strategy, and a design strategy to an elaborated design, - incorporate aspects in the field of architectural history and architectural theory, art, society's needs, human sciences and environmental aspects. - make a design satisfying functional, aesthetic and technical requirements, - position the project in the discourse, - explain the architectural design during a presentation by combining oral, written and graphic media (e.g., drawings, models) 	
Education Method	Design coaching, 4-8 hours counseling per studio during educational weeks, total 112 hours. Self study: total 224 hours.	
Literature and Study Materials	Will be delivered by the tutor and/or coordinator, or via Brightspace	
Assessment	Research booklet Presentation at the end of the semester	
Special Information	Presence at the first meeting is mandatory. For the assessment the presence during the course and the overall design process will be taken in consideration.	
Period of Education	Semester	
Leerstoel	Heritage & Design	
Minimum aantal deelnemers	12, minimum group 8 students	
Maximum aantal deelnemers	48	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1CP010	Complex Projects Design Studio	12
Responsible Instructor	Prof.ir. C.H.C.F. Kaan	
Course Coordinator	M. Triggianese	
Instructor	Ir. A.T. Richters	
Instructor	S. Filippas	
Contact Hours / Week x/x/x/x	80 hours per semester	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	BSc degree Architecture	
Course Contents	<p>As introduction to Complex Projects, this design studio, 'Landmark', has the ambition to make students familiar with the multiple aspects that define a building. Landmark assignment aims for developing skills in the scientific method of analysis and synthesis. Via anatomical dissection, students learn to identify soft and hard aspects of a building while placing them in the bigger frame of the total composition of the building and its context.</p> <p>The studio promotes broad speculation, independent thinking, collective work with the aim of positioning architecture into a broader social, cultural, political, and economic context. Students will perform a thorough urban research in order to understand the areas history and context, and to identify the Landmarks that could become catalyst for intervention. The research zooms in from the large scale of the city itself, to the medium scale the site, to the small scale of the building. The resulting data has to be organized into a comprehensive research book. This serves as basis for forming a narrative which is leading for the individual redesigns of the Landmark.</p> <p>The seminar AR1CP040 (Anatomy) is fully integrated with the studio. An educational trip / excursion with on-site workshops is part of the studio program. Please contact the studio coordinator to know this year's case studies.</p>	
Study Goals	<p>Upon completion of the MSc1, 2, 3 & 4 studio trajectory the student:</p> <ul style="list-style-type: none"> Has developed the skills in architectural design satisfying both aesthetic and technical/functional requirements. During the trajectory the complexity of the architectural design increases leading to a level fit for architectural practice. During this trajectory, skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology and human sciences. Additionally, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and society's needs, including environmental aspects. During MSc1, 2, 3 & 4 process skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing. Together with the training with regard to aspects of building technology, during the MSc1, 2, 3 & 4 process skills are acquired to incorporate an understanding of the design process with regard to structural design, materialization of buildings, comfort and climate control. 	
Education Method	Tutorials in studio. Research will be done in thematic groups, design is either individual or in groups of max 2 students.	
Reader	Reader (syllabus) with the studio programme, the basic literature and the weekly schedule will be provided prior to start studio	
Assessment	<p>Monthly pin ups showing research, argument and concept.</p> <p>Trial presentation two weeks prior to the final presentation. The overall work has to be finished by then. Final presentation composed of research books (with critical investigations and site-analysis) and design studio book (with design projects) and digital presentation.</p>	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Semester	
Leerstoel	Complex Projects, department of Architecture	
Minimum aantal deelnemers	16	
Maximum aantal deelnemers	32	
Course evaluation	<p>Evaluations will be based on the overall performance within the studio. The students performance will be determined by the quality of his/her work, commitment, teamwork, effort and improvement over the entire course of the semester. Concrete aspects for evaluation are; research work, argument formulation, translation argument into concept, urban plan, architectural design, presentation.</p> <p>For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/</p>	

AR1MET010	Ways of Doing	12
Responsible Instructor	Dr.ir. K.M. Havik	
Course Coordinator	Dr.ir. P.J. Teerds	
Instructor	Dr.ir. P.J. Teerds	
Instructor	Dr.ir. W.W.L.M. Wilms Floet	
Contact Hours / Week x/x/x/x	8 hours per week	
Education Period	1 2	
Start Education	1	
Exam Period	none	
Course Language	English	
Summary	<p>The studio Ways of Doing aims to develop and assess distinct methods that allow for innovative way of analysis, architectural design, and spatial intervention in challenging (post-)industrial regions in the Low Countries. Every semester a different site to work on is chosen. These (post-)industrial areas often are dominated by characteristic constructions and buildings: huge installations, factories, warehouses and offices, some still in use, others empty. Particularly in the post-industrial sites, often social questions and signs of foreclosure dominate both the political and the physical landscape. Cities make redevelopment plans, although often it is quite difficult to find the right program and approach in order to revitalise such areas as the local economy.</p> <p>The aim of education in the Methods & Analysis MSc1 studio is to merge analysis and design extensively, in order to face difficult architectural, spatial, technological, social and political questions that dominate these (post-)industrial landscapes.</p>	
Course Contents	<p>From Otto Wagner to Aldo Rossi and Robert Venturi, architects have always developed new approaches and tools to react to changing urban conditions. The studio Ways of Doing wants to position itself within this architectural tradition and asks: Which toolbox can we cultivate to confront new urban ecologies like (post-)industrial landscapes? Through particular assignments, it aims to develop and assess distinct methods that allow for innovative way of analysis, architectural design, and spatial intervention in the challenging reality of (post-)industrial landscapes in various cities in The Netherlands and Belgium. Each semester another site is chosen to be investigated. These (post-)industrial areas often are dominated by characteristic constructions and buildings: huge installations, factories, warehouses and offices, some still in use, others empty. Particularly in the post-industrial sites, often social questions and signs of foreclosure dominate both the political and the physical landscape. Cities make redevelopment plans, although often it is quite difficult to find the right program and approach in order to revitalise such areas as the local economy. Students investigate the spatial, social and political situation by studying particular themes, like the atmosphere, the infrastructure, public space, as well as by using specific methods of analysis and design, like soft-mapping and drawing sections, or developing narratives or spatial poems. Analysis, in this particular perspective, is extensively part of the design-approach that the student will develop during the studio. Part of this approach also is the choice of location, program and aim of a spatial intervention in the area of study.</p>	
Study Goals	<p>Upon completion of the Master 1, 2, 3 & 4 studio trajectory the student:</p> <ul style="list-style-type: none"> - Has developed the skills in architectural design satisfying both aesthetic and technical / functional requirements. During the trajectory the complexity of the architectural design increases leading to a level fit for architectural practise. - During this trajectory skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology and human sciences. - Additionally, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and society's needs, including environmental aspects. This includes moral decision and argumentation skills regarding architectural ethics, especially when addressing social, political, environmental and technological issues. - During Master 1, 2, 3 & 4 process skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing. - Together with the training with regard to aspects of building technology, during the Master 1, 2, 3 & 4 process skills are acquired to incorporate an understanding of the design process with regard to structural design, materialisation of buildings, comfort and climate control. 	
Education Method	<p>The msc1 studio Ways of Doing takes up the task to investigate new tools and methods to address the challenging paradox of historical presence on the one hand, and large new developments on the other. The studio does so by constantly shifting to different methods, in order to look at the site and the research question from various perspectives, which can vary from strict architectural towards technological, and from spatial to political perspectives.</p> <p>During the course, different methods will be applied: from fieldwork to investigations by means of narrative or sections; from material explorations to the development of sequences of use; by focussing on building-technological aspects or on atmospheric aspects of spaces; from focusing on basic architectural elements such as floor, wall and roof, to articulating structural aspects like repetition and hierarchy.</p> <p>Students will start to work in small groups on distinct research themes the result of these investigation is understood as the share knowledge base that is developed in the studio. Based on these insights, the students either continue to work in groups or work individually on the proposal of a spatial intervention in a location of choice.</p>	
Course Relations	<p>This design studio is accompanied by two theoretical seminars, Architectural Tools (AR1MET030) and The Roles of the Architect (AR1MET040) that respectively investigate the instruments used by architects to develop their plans and ideas, and how these affect the very outcome of the design-process, and explore the various roles architects can take within contemporary practices and society.</p>	
Assessment	<p>The course is assessed through a mid-term review and a final presentation of the project. However, as for this course the process is as important as the final design, the students need to present not only the project, but also substantial intermediate findings. The tutors will assess, during the mid-term review and the final presentation the way students understand and apply different methods offered. Particular attention will be given to the question how the student succeeds in using methods as offered in the studio, and how the student is able to formulate particular design hypothesis based on these exercises. The consistency of the project on a methodological, architectural and technical level is crucial for the final assessment. For the mid-term review as well as for the final presentation, external critics will be invited.</p>	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1TWF010	The Why Factory Design Studio: Design lab I	12
Responsible Instructor	Prof.ir. W.G.M. Maas	
Responsible Instructor	F.M. Madrazo Salazar	
Course Coordinator	J. Arpa Fernandez	
Instructor	F.M. Madrazo Salazar	
Instructor	Prof.ir. W.G.M. Maas	
Co-responsible for assignments	S. Gargaretas	
Contact Hours / Week x/x/x/x	6 hours per week	
Education Period	1 2	
Start Education	1	
Exam Period	none	
Course Language	English	
Course Contents	<p>This course is a MSc1 studio, and is organized as a think tank. Studios at The Why Factory are content-driven design and research studios with a practical and theoretical scope. MSc1 studios are research labs and platforms that aim to analyse, theorize and construct future cities. They conduct a variety of investigations within the given world, and produce future scenarios beyond it: from universal to specific and global to local.</p> <p>MSc1 studios start with a specific brief and a statement on the future of urban life. Based on the brief, future scenarios will be developed leading to visionary, city-related designs.</p> <p>Students develop their specific approach to the brief and define the necessary scientific research. Calculations, simulations or modelling to support the studio work are elaborated in a parallel seminar: the Future Models seminar.</p> <p>The results of the research lead to a design project with consequent logic, convincing argumentation and illustrative and fantastic visuals.</p>	
Study Goals	<p>Upon completion of the Master 1, 2, 3 & 4 studio trajectory, the student:</p> <ul style="list-style-type: none"> - Has developed the necessary skills in architectural design that satisfy programmatic, aesthetic and technical requirements. During the Masters trajectory, the complexity of the architectural design increases, leading to the level required for professional practice. - During this period, skills are acquired to increasingly incorporate an understanding of design processes, architectural history and theory, art, technology and human sciences. - Additionally, skills are acquired to incorporate into design an understanding of the relation between buildings, spaces and society's needs, including environmental aspects. - During Master 1, 2, 3 & 4, skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing. - Together with the building technology training, during Master 1, 2, 3 & 4 skills are acquired to incorporate an understanding of the design process with regard to structural design, materialisation of buildings, comfort and climate control. 	
Education Method	Atelier: 150 hours	
Education Method	Self study: 270 hours	
Course Relations	<p>MSc1 studios are linked to two other courses of The Why Factory: the Actualities Workshop (AR1TWF020) and the Future Models seminar (AR1TWF030).</p>	
Course Relations	<p>Students who join the MSc1 design studio AR1TWF010 as core course must join AR1TWF020 and AR1TWF030 as well.</p>	
Course Relations	<p>Students who join the design studio AR1TWF010 as an optional MSc2 studio are not obliged to join AR1TWF020 and AR1TWF030. However, we advise students to join the Future Models seminar AR1TWF030, as it may be helpful for the content of the design studio.</p>	
Assessment	Presentation	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

MSc 3, The Why Factory

AR3A160	Lecture Series Research Methods	6
Responsible Instructor	Dr.ir. P.J. Teerds	
Responsible Instructor	Dr.ir. K.M. Havik	
Course Coordinator	Dr.ir. P.J. Teerds	
Instructor	Dipl.ing. R.A. Gorny	
Instructor	M.F. Berkers	
Contact Hours / Week	28 hours per quarter	
x/x/x/x		
Education Period	1	
Start Education	3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	General Master 2 level of knowledge.	
Course Contents	<p>The lecture series will allow MSc 3 students from all the departments and chairs of our Faculty to reflect on and explore a series of methodological approaches, which should strengthen their architectural positions in the graduation studio, towards the conclusion of their formative process and the consequent obtainment of the corresponding degree.</p>	
Study Goals	<p>Students involved in this course are expected to operate at a final year Masters level, meaning they are responsible for performing critically within the series of concepts presented in the course; as well as individually fulfilling course requirements such as being acknowledged with the basics of scientific writing, formulating hypotheses and investigating at a level equivalent to their standing within the curricular track.</p> <p>This lecture series will address scientific integrity to make sure that architecture students develop the necessary skills for integer research approaches while being aware of the societal, political, physical and environmental impacts their research and design work has.</p>	
Education Method	<p>The lecture series aims to:</p> <ul style="list-style-type: none"> - Take advantage of the magnitude and diversity of the series. The line-up of lecturers, paired to the differences among the academic tracks followed by students from several chairs and departments, should substantially enhance each discussion, and promote creative approaches to each of the topics discussed. - Endow the students with clear knowledge of the heuristic nature of their work. The central thesis of the course is that all architectural activity is an exploration within identifiable disciplinary fields of experimentation, based on equally identifiable epistememes. Awareness of that explorative/cognitive capacity of architecture we sustain is a crucial element in the formation of an architect. - Present the students with a selection of relevant and progressive architectural methodologies and analytical strategies that are currently being used and discussed within the A+BE academic community and in other outstanding educational institutions. - Invite students to become engaged in these discussions actively, in order for their graduation processes to constitute real contributions to the professional debate that feeds our Faculty. It is expected that, with the information provided in this course, each graduation process aims to produce additional architectural knowledge in the face of established and ongoing research programs. - Focus on moral sensibility, analysis, creativity, judgment, and skills regarding architectural ethics when developing specific expertise. 	
Literature and Study Materials	<p>The course comprises two, parallel activities: A series of lectures and the preparation of a position paper. The lecture series is made up of seven sessions. Six have defined topics, the first is introductory. Each lecture session includes a 30+ min. presentation by a lecturer, a 30+ min presentation by a group of students, and a 30+ minute series of Q&A, presented to both lecturer and students. Each guest lecturer is responsible for submitting on the fore a reference text for students to prepare the session, and a paper of her authorship that exposes, summarizes or complements her presentation. Both documents will be made available to the whole group of students with sufficient anticipation.</p> <p>A group of students will be responsible for preparing each lecture. These groups will be formed during the course intro, and will divide themselves into a subgroup in charge of presenting the topic, and other subgroups in charge of preparing a series of debate topics and questions, for the closing discussion.</p> <p>The whole group of students in charge of preparing each session will participate in a workshop, in which they will be guided in the development of their presentation and the construction of different positions within the chosen topic, looking forward to the debate. These workshops will take place on Monday mornings, and will be tutored by the coordinators of the lecture series and/or staff from the chair of Methods and Analysis.</p> <p>Before entering each lecture session, the group of presenting/debating students will hand in a paper of their authorship (2000 words, aprox.) that exposes, summarizes or complements their presentation, the images that accompany their talk, the questions and debate topics developed to feed the debate, and any other addenda they consider necessary to support their understanding of the topic.</p>	
Assessment	<p>A reader will be distributed via Blackboard/Brightspace</p> <p>Each student is responsible to elaborate on her own reflections regarding the course, the debates, the literature that will be provided and suggested, and her own graduation process, by producing an individual position paper (aprox. 2000 2500 words), following scientific standards of writing and structuring her topics (acknowledging a state of the art for a particular discussion, for example) towards the construction of a methodological apparatus in affinity with her own intentions and inclinations.</p> <p>Upon request, specific tutoring/workshops for this second component are available, in the same group format utilized for the preparation of the sessions.</p> <p>In order to attend one of these tutorials, interested students must submit a full draft of their essay, including their name, student number and current chair/graduation studio. The submission deadline for this draft will be specified at the beginning of the period.</p> <p>The course coordination will group the drafts and submit them to available tutors, by topic affinity. These tutors will read the drafts and subsequently organize a workshop with small groups of students. The aim of these workshops are to clarify doubts, elaborate on formal and stylistic concepts, and contribute thematically to the development of the final versions of the papers.</p> <p>The fact that extra tutoring is available does not mean that the students are not encouraged to also seek additional support from their teachers in the other courses that constitute the graduation track.</p> <p>Position papers are expected to be approximately 2000 2500 words in length, and should comply with academic and scientific standards in terms of form and style.</p> <p>The fundamental aim of this assignment is to enable students to formulate a sound and consistent architectural position, in the</p>	

face of the broader discussions presented as a partial state of the art of professional discussion, both within our Faculty and in contemporary architecture culture.

Articulating a position requires knowledge and understanding of a diverse array of postures, which are carefully considered in response to the problems of our time. Getting acquainted with diverse sources, authors and architectural examples; articulating the information contained in these sources; abstracting and operating with the useful and/or relevant ideas they represent; and (hopefully) further elaborating them into progressive architectural models; are all goals of this exercise.

It is assumed that the reflections generated during the course, and the resulting position paper, are active components of the broader exploration that is the graduation project. Research, reflection, discursive elaboration and historical contextualization are fundamental parts of a complete architectural intervention, meant to perform in site- and cultural-specific conditions, but also in the broader intellectual framework that is the architecture of our time.

In this sense, reflections should elaborate on the central concepts, methods and tools employed in the development of the architectural explorations leading to the Masters degree, at a level that transcends the simple description of steps taken in the elaboration of a project.

Cases of plagiarism will be dealt with according to standard procedures established by the corresponding authorities within the University.

Special Information

Each period will include a normal deadline for the presentation of the final position papers. Papers handed in within this deadline will be graded normally.

An extra hand-in moment will be offered for late papers, around the middle of the following academic period. Papers presented for this extra hand-in moment will only be evaluated in terms of pass (6,0/10,0) and fail (5,0/10,0 and under).

Remarks

Position papers will be evaluated on the following items:

- Has a question been clearly defined?
- Has the question been developed beyond its initial formulation?
- Does the paper acknowledge a state of the art, regarding this question?
- Has a position been taken, in relation to this state of the art?
- Is the paper coherent/concise?
- Does the paper follow a clear methodology?
- Are the sources pertinent, and well used?
- Is the language adequate?

Period of Education

Lectures take place during the first quarter of the period.

The second quarter of the period is used for the production of final position papers.

Individualized tutoring is offered upon request, to students who require extra help in the process of writing their papersk, during this second quarter.

Course evaluation

The course will be graded on the basis of a final, position paper, worth 100% of the grade assignable to the Lecture Series. This position paper is expected to range between 2000-2500 words, and must be submitted before a specified deadline.

Only papers accepted and graded with a mark above 5,0/10,0 will be eligible for re-takes or further corrections.

Close attention must be paid to the fact that a passing grade in this course is necessary to apply for a Studio P4 presentation. Please note that the deadline for the presentation of these papers is indicated since the very beginning of the semester. This should allow you to plan the development of your essay without interfering with other deadlines. Conflicts with other courses should be negotiated with the Board of Examiners.

AR3TWF010	The Why Factory: Future Models II	6
Responsible Instructor	A. van Waart	
Responsible Instructor	Prof.ir. W.G.M. Maas	
Responsible Instructor	A.B.O. Ravon	
Course Coordinator	J. Arpa Fernandez	
Instructor	A.B.O. Ravon	
Instructor	A. van Waart	
Instructor	Prof.ir. W.G.M. Maas	
Instructor	J. Arpa Fernandez	
Contact Hours / Week x/x/x/x	1 hour per week	
Education Period	1 2	
Start Education	1	
Exam Period	none	
Course Language	English	
Required for	The Why Factory Architecture Degree Track Thesis Year Students.	
Expected prior knowledge	Competency in English research and writing skills.	
Summary	<p>The Future Models II seminar runs in parallel to the work carried out during the graduation studio MSc3 and is only open for students enrolled in The Why Factory's graduation studio. In the Future Models seminar, parts of the design are scripted in Grasshopper or other relevant software programs. The systematic, parametric exploration of parts of the design is an integral part of the research approach.</p>	
Course Contents	<p>The Why Factory is an exploratory studio; a think tank, a content-driven design and research studio with practical and theoretical scope. The Why Factory can be seen as a research lab and platform that aims to analyse, theorize and construct future cities. The Why Factory investigates within the given world and produces future scenarios beyond it; from universal to specific and global to local.</p> <p>In the Future Models II seminar, various techniques in visualisation and scripting are presented and explained. Depending on the students prior knowledge, the seminar will provide an introduction into the techniques or provide a more advanced training. Together with the studio teacher of the MSc3 studio, a specific assignment is developed with supports the output of the studio. At the end of the seminar, the students are graded based on a number of visuals, animations or scripts which are agreed upon beforehand with the seminar teacher.</p> <p>The Future Models II seminar runs in parallel to the work carried out during the graduation studio MSc3 and is only open for students enrolled in The Why Factory's graduation studio. In the Future Models seminar, parts of the design are scripted in Grasshopper or other relevant software programs. The systematic, parametric exploration of parts of the design is an integral part of the research approach.</p> <p>The Why Factory is an exploratory studio; a think tank, a content-driven design and research studio with practical and theoretical scope. The Why Factory can be seen as a research lab and platform that aims to analyse, theorize and construct future cities. The Why Factory investigates within the given world and produces future scenarios beyond it; from universal to specific and global to local.</p> <p>In the Future Models II seminar, various techniques in visualisation and scripting are presented and explained. Depending on the students prior knowledge, the seminar will provide an introduction into the techniques or provide a more advanced training. Together with the studio teacher of the MSc3 studio, a specific assignment is developed with supports the output of the studio. At the end of the seminar, the students are graded based on a number of visuals, animations or scripts which are agreed upon beforehand with the seminar teacher.</p>	
Study Goals	<p>The student:</p> <ul style="list-style-type: none"> - Has skills in the methods of research and preparation of a project and was trained to relate theory to the practise of design. - Has an understanding of and skills how to investigate and incorporate the relation between people's and society's needs in the design process. - Has a complex understanding of the profession and the role of the architect within society. He/she is able to address social implications, but also the limits of the architectural project and its societal relevance. - Is able to distinguish between and to apply the panoply of research methods in order to inform the design process of the architectural project. 	
Education Method	<p>Tutorial: 60 hours Self study: 108 hours</p>	
Course Relations	<p>The following three courses are mandatory for The Why Factory MSc3 students in Architecture Degree Track:</p> <ul style="list-style-type: none"> - AR3TWF030 The Why Factory Thesis Studio - AR3TWF020 The Why Factory: Future Views - AR3TWF010 The Why Factory: Future Models II - AR3A160 Lecture Series Research Methods 	
Literature and Study Materials	<p>Required literature / reader</p> <ul style="list-style-type: none"> - To be provided at beginning of semester - Blackboard: documents uploaded regularly 	
Prerequisites	Successful Completion of Bsc diploma and all Master 1 & 2 courses as required by degree programs in Architecture.	
Assessment	Written report	
Special Information	The maximum marking period is 10 work days.	
Remarks	This course is mandatory for all The Why Factory Architecture Degree track students. Urbanism Degree track students are required to enrol in Research Orientation and Analysis (AR3U032). This course is only open to The Why Factory MSc3 Thesis Studio students.	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR3TWF020	The Why Factory: Future Views	3
Responsible Instructor	Prof.ir. W.G.M. Maas	
Responsible Instructor	A.B.O. Ravon	
Course Coordinator	J. Arpa Fernandez	
Instructor	A.B.O. Ravon	
Instructor	Prof.ir. W.G.M. Maas	
Instructor	J. Arpa Fernandez	
Contact Hours / Week x/x/x/x	1,5 hours per week	
Education Period	1 2	
Start Education	1	
Exam Period	none	
Course Language	English	
Required for	The Why Factory Architecture Degree Track Thesis Year Students.	
Expected prior knowledge	Competency in English research and writing skills.	
Summary	The Why Factory sees its goal in confronting immediate realities of our world with their urban implications. The Future Views course explores actual urban conditions and urgencies through the lens of a series of guided interviews. These interviews are related to the topics addressed in the MSc3 design studio.	
Course Contents	The Why Factory sees its goal in confronting immediate actualities of our world with their urban implications. Collaborating with different stakeholders, institutions, agencies and various practices, The Why Factory explores the possibility of actual interventions. Responding to the concrete briefs it operates with short-term projects looking at the situations, where change is needed and pragmatically exploring how the change is possible. It confronts global urgency with local possibility looking into its political, social, economic and cultural dimension. This course will address these issues with a series of lectures or guided interviews with specialists, co-ordinated by The Why Factory staff.	
Study Goals	The student: - Has adequate knowledge of the history and theories architectural research methods and design instruments also in regard to technology and notions derived from human sciences. - Has an understanding and skills how to investigate and incorporate the relation between people and the physical environment. - Is able to distinguish between and to apply the panoply of research methods in order to inform the design process of the architectural project.	
Education Method	Lecture: 26 hours Self study: 58 hours	
Course Relations	The following three courses are mandatory for The Why Factory MSc3 students in Architecture Degree Track: - AR3TWF030 The Why Factory Thesis Studio - AR3TWF020 The Why Factory: Future Views - AR3TWF010 The Why Factory: Future Models II - AR3A160 Lecture Series Research Methods	
Literature and Study Materials	Required literature / reader: - Discussed individually at beginning of semester Blackboard: - Documents uploaded regularly	
Prerequisites	Successful Completion of Bachelor diploma and all Master 1 & Master 2 courses as required by degree programs in Architecture.	
Assessment	Written report Presentation	
Special Information	The maximum marking period is 10 work days.	
Remarks	This course is mandatory for all The Why Factory Architecture Degree track students. This course is only open to The Why Factory MSc3 Thesis Studio students.	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR3TWF030	The Why Factory Graduation Studio	15
Responsible Instructor	Prof.ir. W.G.M. Maas	
Responsible Instructor	A.B.O. Ravon	
Course Coordinator	J. Arpa Fernandez	
Instructor	A.B.O. Ravon	
Instructor	Prof.ir. W.G.M. Maas	
Instructor	J. Arpa Fernandez	
Contact Hours / Week x/x/x/x	150 hours per semester	
Education Period	1 2	
Start Education	1	
Exam Period	none	
Course Language	English	
Expected prior knowledge	Competency in English research and writing skills. Advanced competency in multiple and complex analytical and design skills as per Master level education requirements.	
Summary	The Why Factory's graduation studio, MSc3, is to be continued by the MSc4 in the Spring. The MSc3 studio is a graduation studio that focuses on the shaping of urban futures and involving systematic processes for thinking, planning, scripting and envisioning the future.	
Course Contents	The graduation studio (MSc3 and later MSc4) includes highly integrated research and design aspects facilitated by the design lab and complementary theory, programming and representation courses.	
Course Contents	The graduation studios (MSc3 and MSc 4) are the most advanced design studios offered by The Why Factory. They focus on exploring how the future of the city will be - wherever, whenever.	
Course Contents	The students are rethinking, researching, reshaping and enhancing the image of future urban life. They design visionary cities and 'fantastic' architecture.	
Course Contents	The studios include highly integrated research and design aspects throughout Master 3 and Master 4. Both, research projects and design projects will contribute to the research of The Why Factory. At the beginning of the studio, the topic of the studio will be explored collectively and different specific research projects will be extracted. These research projects will be conducted in separate groups.	
Course Contents	Through constant exchange of information and possible regrouping during this phase, the development of a consistent body of research will be granted. The research includes the use of maps, timelines, comprehensive graphics and strong visuals. Following the principle of research-by-design, topics can also be explored by separate design projects in this phase.	
Course Contents	Instructors will assist in research and visualization techniques leading to comprehensive and communicable statements on the future of urban life. With their research projects, the students will make statements and will take a position, which will form the base for design in the next semester (see studio description MSc4 4).	
Course Contents	The studio will contribute to the collective research of the Why-Factory. The students will take a position on the future of the city. Throughout the studio, the students will discuss their observations and statements with both the teachers and external experts.	
Course Contents	Eventually the research will be communicated internationally by various activities of The Why-Factory such as exhibitions, publications, workshops and panel discussions, taking it to a broad publicity.	
Study Goals	Upon completion of the Master 1, 2, 3 & 4 studio trajectory, the student:	
Study Goals	- Has developed the necessary skills in architectural design that satisfy programmatic, aesthetic and technical requirements.	
Study Goals	During the Masters trajectory, the complexity of the architectural design increases, leading to the level required for professional practice.	
Study Goals	- During this period, skills are acquired to increasingly incorporate an understanding of design processes, architectural history and theory, art, technology and human sciences.	
Study Goals	- Additionally, skills are acquired to incorporate into design an understanding of the relation between buildings, spaces and society's needs, including environmental aspects.	
Study Goals	- During Master 1, 2, 3 & 4, skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing.	
Study Goals	- Together with the building technology training, during Master 1, 2, 3 & 4 skills are acquired to incorporate an understanding of the design process with regard to structural design, materialisation of buildings, comfort and climate control.	
Study Goals	The graduation report demonstrates the students' ability to employ moral sensibility, analysis, creativity, judgment, decision and argumentation skills regarding Architectural ethics and his/her future role as architect. The individual graduation report should not only contain an elaboration regarding the Graduation Projects' societal and disciplinary relevance, but has to also address design ethics and the way in which intercultural issues were addressed in the graduation project.	
Education Method	Atelier: 150 hours	
Education Method	Self study: 270 hours	
Course Relations	The following three courses are mandatory for The Why Factory MSc3 students in Architecture Degree Track:	
Course Relations	- AR3TWF030 The Why Factory Thesis Studio	
Course Relations	- AR3TWF020 The Why Factory: Future Views	
Course Relations	- AR3TWF010 The Why Factory: Future Models II	
Course Relations	- AR3A160 Lecture Series Research Methods	
Course Relations	For The Why Factory MSc3 students in Urbanism Degree Track:	
Course Relations	Please enrol in the complete Urbanism MSc3 program.	
Course Relations	If you have any questions on this matter, please contact the course co-ordinator:	
Course Relations	Javier Arpa	
Course Relations	javier@thewhyfactory.com	
Literature and Study Materials	Blackboard: readings to be uploaded	
Prerequisites	Successful Completion of Bachelor diploma and all Master 1 & 2 courses as required by degree programs of Architecture or Urbanism.	
Assessment	Presentation	
Permitted Materials during Tests	PowerPoint presentation, printed materials and models.	
Special Information	The maximum marking period is 10 work days.	
Remarks	The Why Factory Master 3/4 studio and courses are open to both students of Architecture and Urbanism. However, it is important to note that this program is not approved as a 'double-degree' program. Students are advised to make certain they inscribe in the correct 'related' courses as per the requirements listed above in this document.	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

MSc 4, The Why Factory

AR4TWF010	The Why Factory Graduation Studio	30
Responsible Instructor	Prof.ir. W.G.M. Maas	
Responsible Instructor	A.B.O. Ravon	
Course Coordinator	J. Arpa Fernandez	
Instructor	A.B.O. Ravon	
Instructor	Prof.ir. W.G.M. Maas	
Instructor	J. Arpa Fernandez	
Contact Hours / Week x/x/x/x	130 hours per semester	
Education Period	3	
	4	
Start Education	3	
Exam Period	none	
Course Language	English	
Required for	The Why Factory Thesis Year Students.	
Expected prior knowledge	Competent with respect to all previously taken and successfully completed Master 3 courses.	
Summary	The Why Factorys graduation studio MSc4 follows the work started during the MSc3 graduation studio. While research is carried out collectively, students work individually on their design projects. Those investigations often have experimental character and are inherently linked to visions of the city in regard to the researched subject.	
Course Contents	<p>The graduation studios (MSc3 and MSc 4) are the most advanced design studios offered by The Why Factory. They focus on exploring how the future of the city will be - wherever, whenever.</p> <p>The students are rethinking, researching, reshaping and enhancing the image of future urban life. They design visionary cities and 'fantastic' architecture.</p> <p>The studios include highly integrated research and design aspects throughout MSc3 and MSc4. Both research and design projects will contribute to the research of The Why Factory. At the beginning of the studio, the topic of the studio will be explored collectively and different specific research projects will be extracted. These research projects will be conducted in separate groups.</p> <p>Through constant exchange of information and possible regrouping during this phase, the development of a consistent body of research will be granted. The research includes the use of maps, timelines, comprehensive graphics and strong visuals. Following the principle of research-by-design, topics can also be explored by separate design projects in this phase.</p> <p>Instructors will assist in research and visualization techniques leading to comprehensive and communicable statements on the future of urban life. With their research projects, the students will make statements and will take a position during the first semester of the graduation research (see description of MSc3) which will form the base for design during the MSc4 semester..</p> <p>The studio will contribute to the collective research of the Why-Factory. The students will take a position on the future of the city. Throughout the studio, the students will discuss their observations and statements with both the teachers and external experts.</p> <p>Eventually the research will be communicated internationally by various activities of The Why-Factory such as exhibitions, publications, workshops and panel discussions, taking it to a broad publicity.</p>	
Study Goals	<p>Upon completion of the Master 1, 2, 3 & 4 studio trajectory, the student:</p> <ul style="list-style-type: none"> - Has developed the necessary skills in architectural design that satisfy programmatic, aesthetic and technical requirements. - During the Masters trajectory, the complexity of the architectural design increases, leading to the level required for professional practice. - During this period, skills are acquired to increasingly incorporate an understanding of design processes, architectural history and theory, art, technology and human sciences. - Additionally, skills are acquired to incorporate into design an understanding of the relation between buildings, spaces and societys needs, including environmental aspects. - During Master 1, 2, 3 & 4, skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing. - Together with the building technology training, during Master 1, 2, 3 & 4 skills are acquired to incorporate an understanding of the design process with regard to structural design, materialisation of buildings, comfort and climate control. <p>The graduation report demonstrates the students ability to employ moral sensibility, analysis, creativity, judgment, decision and argumentation skills regarding Architectural ethics and his/her future role as architect. The individual graduation report should not only contain an elaboration regarding the Graduation Projects societal and disciplinary relevance, but has to also address design ethics and the way in which intercultural issues were addressed in the graduation project.</p>	
Education Method	Atelier: 130 hours Self study: 700 hours	
Course Relations	The Why Factory: Master 3 - Thesis Studio.	
Prerequisites	Successful completion of Bachelor diploma and all required Master courses up to and including MSc 3 curriculum as required by degree programs of Architecture or Urbanism Successful completion of The Why Factory (AR3TWF010) thesis studio.	
Assessment	Presentation	
Permitted Materials during Tests	PowerPoint presentation, printed materials and models.	
Special Information	The maximum marking period is 10 work days.	
Remarks	This course is the concluding part of the Thesis Year - Graduation Project, and is coupled to the Master 3 The Why Factory course. It is open exclusively to those students who have followed and successfully completed the Master 3 The Why Factory studio as well as all additional required curricula.	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

Transitional Territories

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

MSc 3 Transitional Territories

AR3A160	Lecture Series Research Methods	6
Responsible Instructor	Dr.ir. P.J. Teerds	
Responsible Instructor	Dr.ir. K.M. Havik	
Course Coordinator	Dr.ir. P.J. Teerds	
Instructor	Dipl.ing. R.A. Gorny	
Instructor	M.F. Berkers	
Contact Hours / Week x/x/x/x	28 hours per quarter	
Education Period	1 3	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	General Master 2 level of knowledge.	
Course Contents	<p>The lecture series will allow MSc 3 students from all the departments and chairs of our Faculty to reflect on and explore a series of methodological approaches, which should strengthen their architectural positions in the graduation studio, towards the conclusion of their formative process and the consequent obtainment of the corresponding degree.</p> <p>Students involved in this course are expected to operate at a final year Masters level, meaning they are responsible for performing critically within the series of concepts presented in the course; as well as individually fulfilling course requirements such as being acknowledged with the basics of scientific writing, formulating hypotheses and investigating at a level equivalent to their standing within the curricular track.</p> <p>This lecture series will address scientific integrity to make sure that architecture students develop the necessary skills for integer research approaches while being aware of the societal, political, physical and environmental impacts their research and design work has.</p>	
Study Goals	<p>The lecture series aims to:</p> <ul style="list-style-type: none"> - Take advantage of the magnitude and diversity of the series. The line-up of lecturers, paired to the differences among the academic tracks followed by students from several chairs and departments, should substantially enhance each discussion, and promote creative approaches to each of the topics discussed. - Endow the students with clear knowledge of the heuristic nature of their work. The central thesis of the course is that all architectural activity is an exploration within identifiable disciplinary fields of experimentation, based on equally identifiable epistememes. Awareness of that explorative/cognitive capacity of architecture we sustain is a crucial element in the formation of an architect. - Present the students with a selection of relevant and progressive architectural methodologies and analytical strategies that are currently being used and discussed within the A+BE academic community and in other outstanding educational institutions. - Invite students to become engaged in these discussions actively, in order for their graduation processes to constitute real contributions to the professional debate that feeds our Faculty. It is expected that, with the information provided in this course, each graduation process aims to produce additional architectural knowledge in the face of established and ongoing research programs. - Focus on moral sensibility, analysis, creativity, judgment, and skills regarding architectural ethics when developing specific expertise. 	
Education Method	<p>The course comprises two, parallel activities: A series of lectures and the preparation of a position paper. The lecture series is made up of seven sessions. Six have defined topics, the first is introductory. Each lecture session includes a 30+ min. presentation by a lecturer, a 30+ min presentation by a group of students, and a 30+ minute series of Q&A, presented to both lecturer and students. Each guest lecturer is responsible for submitting on the fore a reference text for students to prepare the session, and a paper of her authorship that exposes, summarizes or complements her presentation. Both documents will be made available to the whole group of students with sufficient anticipation.</p> <p>A group of students will be responsible for preparing each lecture. These groups will be formed during the course intro, and will divide themselves into a subgroup in charge of presenting the topic, and other subgroups in charge of preparing a series of debate topics and questions, for the closing discussion.</p> <p>The whole group of students in charge of preparing each session will participate in a workshop, in which they will be guided in the development of their presentation and the construction of different positions within the chosen topic, looking forward to the debate. These workshops will take place on Monday mornings, and will be tutored by the coordinators of the lecture series and/or staff from the chair of Methods and Analysis.</p> <p>Before entering each lecture session, the group of presenting/debating students will hand in a paper of their authorship (2000 words, aprox.) that exposes, summarizes or complements their presentation, the images that accompany their talk, the questions and debate topics developed to feed the debate, and any other addenda they consider necessary to support their understanding of the topic.</p>	
Literature and Study Materials	A reader will be distributed via Blackboard/Brightspace	
Assessment	<p>Each student is responsible to elaborate on her own reflections regarding the course, the debates, the literature that will be provided and suggested, and her own graduation process, by producing an individual position paper (aprox. 2000 2500 words), following scientific standards of writing and structuring her topics (acknowledging a state of the art for a particular discussion, for example) towards the construction of a methodological apparatus in affinity with her own intentions and inclinations.</p> <p>Upon request, specific tutoring/workshops for this second component are available, in the same group format utilized for the preparation of the sessions.</p> <p>In order to attend one of these tutorials, interested students must submit a full draft of their essay, including their name, student number and current chair/graduation studio. The submission deadline for this draft will be specified at the beginning of the period.</p> <p>The course coordination will group the drafts and submit them to available tutors, by topic affinity. These tutors will read the drafts and subsequently organize a workshop with small groups of students. The aim of these workshops are to clarify doubts, elaborate on formal and stylistic concepts, and contribute thematically to the development of the final versions of the papers.</p> <p>The fact that extra tutoring is available does not mean that the students are not encouraged to also seek additional support from their teachers in the other courses that constitute the graduation track.</p> <p>Position papers are expected to be approximately 2000 2500 words in length, and should comply with academic and scientific standards in terms of form and style.</p> <p>The fundamental aim of this assignment is to enable students to formulate a sound and consistent architectural position, in the</p>	

face of the broader discussions presented as a partial state of the art of professional discussion, both within our Faculty and in contemporary architecture culture.

Articulating a position requires knowledge and understanding of a diverse array of postures, which are carefully considered in response to the problems of our time. Getting acquainted with diverse sources, authors and architectural examples; articulating the information contained in these sources; abstracting and operating with the useful and/or relevant ideas they represent; and (hopefully) further elaborating them into progressive architectural models; are all goals of this exercise.

It is assumed that the reflections generated during the course, and the resulting position paper, are active components of the broader exploration that is the graduation project. Research, reflection, discursive elaboration and historical contextualization are fundamental parts of a complete architectural intervention, meant to perform in site- and cultural-specific conditions, but also in the broader intellectual framework that is the architecture of our time.

In this sense, reflections should elaborate on the central concepts, methods and tools employed in the development of the architectural explorations leading to the Masters degree, at a level that transcends the simple description of steps taken in the elaboration of a project.

Cases of plagiarism will be dealt with according to standard procedures established by the corresponding authorities within the University.

Special Information

Each period will include a normal deadline for the presentation of the final position papers. Papers handed in within this deadline will be graded normally.

An extra hand-in moment will be offered for late papers, around the middle of the following academic period. Papers presented for this extra hand-in moment will only be evaluated in terms of pass (6,0/10,0) and fail (5,0/10,0 and under).

Remarks

Position papers will be evaluated on the following items:

- Has a question been clearly defined?
- Has the question been developed beyond its initial formulation?
- Does the paper acknowledge a state of the art, regarding this question?
- Has a position been taken, in relation to this state of the art?
- Is the paper coherent/concise?
- Does the paper follow a clear methodology?
- Are the sources pertinent, and well used?
- Is the language adequate?

Period of Education

Lectures take place during the first quarter of the period.

The second quarter of the period is used for the production of final position papers.

Individualized tutoring is offered upon request, to students who require extra help in the process of writing their papers, during this second quarter.

Course evaluation

The course will be graded on the basis of a final, position paper, worth 100% of the grade assignable to the Lecture Series. This position paper is expected to range between 2000-2500 words, and must be submitted before a specified deadline.

Only papers accepted and graded with a mark above 5,0/10,0 will be eligible for re-takes or further corrections.

Close attention must be paid to the fact that a passing grade in this course is necessary to apply for a Studio P4 presentation. Please note that the deadline for the presentation of these papers is indicated since the very beginning of the semester. This should allow you to plan the development of your essay without interfering with other deadlines. Conflicts with other courses should be negotiated with the Board of Examiners.

AR3AP020	Tutorial Research Methods	3
Responsible Instructor	Dr.ir. M.G.H. Schoonderbeek	
Responsible Instructor	Dr.ir. S. Komossa	
Course Coordinator	S. Milani	
Course Coordinator	Ir. A.M.F. van Dam	
Instructor	Ir. F. Geerts	
Instructor	Dr.ir. S. Komossa	
Instructor	Ir. A.M.F. van Dam	
Instructor	Dr.ir. M.G.H. Schoonderbeek	
Instructor	A.S. Alkan	
Instructor	N. Marzot	
Instructor	S. Milani	
Contact Hours / Week x/x/x/x	3 hours per week	
Education Period	1 2	
Start Education	1	
Exam Period	none	
Course Language	English	
Course Contents	<p>The course bridges between the theory/research seminar and the MSc. 3 design studio focusing on the crucial link between the design acts, various forms of expression and representation techniques.</p> <p>The tutorials specifically focus on the potential of different modes of representation as a domain of design research in architecture. Hence, the tutorial sessions address various topics and issues in the design process from ideation to materialisation, ranging between precedents, principles of composition, visionary or canonical projects.</p> <p>Invited speakers or researchers will reflect on topical issues, addressing different design/research approaches and they provide feedback on the current status of the students work.</p> <p>The assignment sets constraints on the medium, technique directing the students design research through a guiding theme so that they can sharpen their technique and expressive language within the collective framework of the course.</p>	
Study Goals	<ul style="list-style-type: none"> - Become aware of different (design) research methods in order to inform own design process - Acquire necessary skills in writing/drawing indicated in the course requirements - Explore different design/research approaches and techniques - Work with and probe different constraints to define individual design approach 	
Education Method	<p>Tutorials by the (studio) teachers and guest speakers</p> <p>Tutorials/seminars/lectures (including evaluation): 28 hours Self-study: 56 hours</p>	
Assessment	Interim presentations and final report (paper and/or drawing)	
Enrolment / Application	This tutorial course is a required component for the MSc3 graduation studio of the Chair of Architecture and Public Building.	
Special Information	<p>The maximum marking period is 10 work days.</p> <p>For more information, contact: pb-edu-bk@tudelft.nl</p>	
Period of Education	<p>This course meets bi-weekly (i.e. once every two weeks) over the semester period. In total, there are eight classes; each lasts 3 to 3,5 hours. Definitive course scheduled TBA.</p>	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR3TT010	Aspects of Water Related Design	6
Responsible Instructor	Dr.ir. T. Kuzniecowa Bacchin	
Course Coordinator	Dr.ir. T. Kuzniecowa Bacchin	
Instructor	Dr.ir. T. Kuzniecowa Bacchin	
Education Period	1 2	
Start Education	1	
Exam Period	2 3	
Course Language	English	
Required for	The course is required to all Architecture students that join the MSc3 Transitional Territories Studio.	
Course Contents	Urbanism and Landscape Architecture students that join the MSc3 Transitional Territories Studio are welcome to attend this course. Aspects of Water Related Design (AWRD) course is part of the MSc3 Transitional Territories Studio and focuses on spatial, aesthetic, programmatic and technical requirements for water responsive designs. During this course students will explore the dynamics of waterscapes, deriving insights from aspects related to flood risk and landscape perception and translating those insights into form and structure (composition and configuration). Analytical and design methods and techniques will be explained focusing on site specificity, perception, composition and performance. The theoretical background will be discussed during lectures and group readings of scientific articles on the role of narratives, spatial morphology, landscape ecology and technical aspects when designing with water/ in waterscapes.	
Study Goals	Upon completion of the course the student: - has developed insight on the relevant spatial and environmental aspects and debate regarding water related risk task in the waterscape of his/her choice; - has developed insight in the topic of water related risk (resilience, adaptation and transformation) and its relation to spatial, aesthetic, programmatic and technical requirements for the (architectural or urban) design brief; - has learned how to translate those spatial, aesthetic, programmatic and technical requirements into form and structure (composition and configuration). In addition, students will also be expected to demonstrate the following abilities: - reflect in a critical way on theory related to aspects of designing with water/ in waterscapes; - develop a critical theoretical position in relation to the literature; - synthesise ideas; - state a personal position in a theory essay part of the final research report.	
Education Method	- Lecture series related to the topics of (a) spatial perception and cognition; (b) spatial analyses and composition; (c) landscape ecology; (d) flood/drought risk management and water resilience; and (e) performative design. - Weekly exercises on analysis, synthesis, transposition and future projection in waterscapes; - Readings and group presentations on selected articles; - Individual meetings with the research mentor.	
Literature and Study Materials	A reader will be provided at the beginning of the course with a selection of theoretical and methodological articles on the topics to be addressed during the course.	
Assessment	The final product is a research report, in which the student shows: - understanding of the debate and water risk task in the waterscape of his/her choice. - insight in the topic of water responsive design and its relation to spatial, aesthetic, programmatic and technical requirements for the architectural and urban (landscape) design brief. - an overview of design criteria and instruments addressing aspects of spatial, aesthetic, programmatic and technical requirements of flood risk and climate adaptation. In addition, students are expected to demonstrate the following abilities: - reflect in a critical way on theory and actively participate in class discussions; - develop a critical theoretical position in relation to the literature and take a personal position in relation to these; - synthesise ideas; - state a personal position in a theory essay part of final the research report.	
Structure of the research report:	<p>1. De-composition of an exemplary (built) project and its waterscape</p> <ol style="list-style-type: none"> Waterscape: Describing physical qualities, waterscape dynamics and risks Legacies: Perceiving/ interpreting physical traces and landscape narratives prerogatives of the built project Project: Analysing views/ approach and access/ positioning/ indoor-outdoor spaces/ construction techniques/ materialization/ details <p>2. Choice of new waterscape site (for the academic year 2018-2019 the proposed waterscape region is the North Sea)</p> <ol style="list-style-type: none"> New waterscape: Describing physical qualities, waterscape dynamics and risks Legacies: Perceiving/ interpreting physical traces and landscape narratives prerogatives for the new project <p>3. Re-composition: transposing (transfer and re-design) in the new waterscape</p> <ol style="list-style-type: none"> Technical constraints: Translating sites physical qualities/ waterscape dynamics into technology requirements/ construction techniques Program: Reflecting on the influence of the waterscape in the revision/ formulation of the projects program Flexibility: Programming of open spaces for flexible uses design operations focusing on contingency of use Symbolism and experience: Project framework and perception design operations focusing on cognition and legibility Abstraction: Abstracting/ describing the key design principles of the transposed (new) project. <p>4. Architectural Language</p> <ol style="list-style-type: none"> Lexicon: classification of project's composition elements Syntactic Structure Adaptation/ Transformation of project's architectural language under three contextual conditions/domains of water: (1) dry, (2) exceedance, (3) flooding <p>5. Theory Essay</p> <p>Short essay of 1.500 words on one of the following topics:</p> <ul style="list-style-type: none"> On Forms of life: Resistance and/or Acceptance On Geography: Between Land and Water On Dynamics: Flows and Movement <p>Students are requested to reflect on a selected number of theoretical and methodological scientific articles for the writing of their essay.</p>	

The research report should be handed in both as a hard copy as digital report and should include:
original drawings and diagrams and text produced by the student
correct references when using reference images or text
clarity in presentation and communication

Students will hand in their final report 1 week before the P2 (latest) as a pdf file named: AWRD - student name - month+year
and a hard copy in the mail box of T.K. Bacchin at the secretary of urbanism.

Period of Education

Semester

AR3TT015	Transitional Territories - Research Module	15
Responsible Instructor	Dr.ir. T. Kuzniecowa Bacchin	
Course Coordinator	Dr.ir. T. Kuzniecowa Bacchin	
Instructor	Dr.ir. T. Kuzniecowa Bacchin	
Education Period	1 2	
Start Education	1	
Exam Period	2 3	
Course Language	English	
Course Contents	Individual architectural research and conceptual design assignment within theme and location of the design studio. The program consists of design studio meetings, individual meetings, lecture series, masterclass and progress panels (with invited external design critics). The final results of the graduation projects are jointly presented (exhibited) and assessed at the end of the semester.	
	<p>Transitional Territories is an interdisciplinary design studio (architecture, urbanism, landscape architecture, hydraulic structures and flood risk, policy analysis) with a strong emphasis on the translation of research output into design concepts. During the graduation year you will develop an analytic, critical and conceptual approach to design and learn how to use research and design methods such as case study analysis, system analysis (spatial and temporal dimensions), perception/ phenomenology, landscape narration, and performative design. The studio is founded on theories of complexity, territorialism, landscape urbanism and ecology, environmental risk and transition management (dynamic adaptation), and infrastructural space.</p>	
	<p>Students will learn how to use research output to strengthen their project and get in control of complex design assignments. During the graduation year students will be asked to reflect on aspects of spatial morphology and the diachrony and diversity of mechanisms re-shaping urbanised land/waterscapes continuously. Within the scope of the studio, students will be able to formulate their fascination and choose their own design assignment, which can vary from buildings, constructions and public works to urban areas, landscapes and regions.</p>	
	<p>The studio will contribute to the collective research of the Delta Urbanism Interdisciplinary Research Program. Students will take a position on the future of urbanised landscapes (the production of territory) reflecting on new interdependencies between natural processes, societal practices and (geo)political projects. Throughout the studio, students will discuss their observations and statements with both teachers and external experts.</p>	
	<p>Additional theoretical and technical research topics of the parallel research course 'Aspects of Water Related Design (AWRD)' are of basic importance for the design concept to be presented at the end of Master 3 and are integrated in the final results.</p>	
	<p>Research output will be communicated through the Delta Urbanism website (deltaurbanismtudelft.org).</p>	
Study Goals	<p>Upon completion of the Master 3 & 4 studio trajectory the student:</p> <ul style="list-style-type: none"> - Has developed the skills in architectural design satisfying both aesthetic, programmatic and technical requirements. During the trajectory, the complexity of the architectural design increases leading to a level fit for architectural practice. - During this trajectory research skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology and human sciences. - Additionally, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and society's needs, including environmental aspects. - During Master 3 & 4 process skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing. - Together with the training with regard to aspects of building technology, during the Master 4 process skills are acquired to incorporate an understanding of the design process with regard to structural design, materialization of buildings, comfort and climate control. 	
	<p>The graduation report demonstrates the student's ability to employ moral sensibility, analysis, creativity, judgment, decision and argumentation skills regarding architectural ethics and his/her future role as architect. The individual graduation report should not only contain an elaboration regarding the Graduation Projects societal and disciplinary relevance, but has to also address design ethics and the way in which intercultural issues were addressed in the graduation project.</p>	
	<p>Studio objectives:</p> <ul style="list-style-type: none"> - To develop an innovative didactic exchange among the disciplines of Architecture, Urbanism, Landscape Architecture, Water Engineering and Policy Analysis; - To operate analytical research at the large territorial scale of lowlands (maritime, riverine and/or delta) regions and formulate a design brief; - To formulate a comprehensive architecture design strategy (considering the different spatial and temporal scales relevant for the design); - To elaborate and apply a comprehensive architecture research and innovative design reasoning; - To prepare students to work on both research innovation and design projects in design offices and governmental departments. 	
	<p>Learning objectives:</p> <ul style="list-style-type: none"> - Students will be able to operate a coherent, accurate and evidence-based analytical research at a large territorial scale of lowland regions; - Students specific architectural transcalar design task (from territorial to architectural scales); - Students will be able to share and integrate knowledge from other disciplines; - Students will be able to formulate a highly individualised design approach; - Students will be able to apply innovative design methodologies and creative techniques for their design; - Students will be able to select and apply comprehensive constructive techniques; - Students will be able to express and represent their design ideas at appropriate scales. 	
Education Method	<p>Studio meetings, individual meetings with your mentors, workshops and design masterclass, progress panels with external design critics, lecture series.</p>	
	<p>Studio collective exhibition and symposium with invited external speakers at the end of each semester focusing on research results (Master 3) and design results (Master 4).</p>	
Assessment	See the Graduation Manual.	
Remarks	<p>There is an excursion to your location which is either the Dutch Delta or a foreign lowland (maritime, riverine, and/or delta) region.</p>	
	<p>Transitional Territories Studio 2018-2019</p>	
	<p>North Sea: Landscapes of Coexistence</p>	
	<p>Altered Natures and the Architecture of Extremes</p>	

For the academic year 2018-2019 the case study is the North Sea (as territory), focusing on the coastal landscapes of France, the Netherlands, Norway and Great Britain.

The excursion to the North Sea is not obligatory and optional for all students joining the studio. The excursion is organised by the studio on the fifth/ sixth week of the Master 3. We always try to find sponsors for part of the foreign excursion costs.

Period of Education

Semester

Maximum aantal deelnemers Max. 15 participants

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

MSc 4 Transitional Territories

AR4TT010	Transitional Territories - Design Module	30
Responsible Instructor	Dr.ir. T. Kuzniecowa Bacchin	
Course Coordinator	Dr.ir. T. Kuzniecowa Bacchin	
Instructor	Dr.ir. T. Kuzniecowa Bacchin	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Course Contents	<p>Individual architectural design assignment within theme and location of the design studio. The program consists of design studio meetings, individual meetings, lecture series, masterclass and progress panels (with invited external design critics). The final results of the graduation projects are jointly presented (exhibited) and assessed at the end of the semester/ academic year.</p>	
	<p>Transitional Territories is an interdisciplinary design studio (architecture, urbanism, landscape architecture, hydraulic structures and flood risk, policy analysis) with a strong emphasis on the translation of research output into design concepts. During the graduation year you will develop an analytic, critical and conceptual approach to design and learn how to use research and design methods such as case study analysis, system analysis (spatial and temporal dimensions), perception/ phenomenology, landscape narration, and performative design. The studio is founded on theories of complexity, territorialism, landscape urbanism and ecology, environmental risk and transition management (dynamic adaptation), and infrastructural space.</p> <p>Students will learn how to use research output to strengthen their project and get in control of complex design assignments. During the graduation year students will be asked to reflect on aspects of spatial morphology and the diachrony and diversity of mechanisms re-shaping urbanised land/waterscapes continuously. Within the scope of the studio, students will be able to formulate their fascination and choose their own design assignment, which can vary from buildings, constructions and public works to urban areas, landscapes and regions.</p> <p>The studio will contribute to the collective research of the Delta Urbanism Interdisciplinary Research Program. Students will take a position on the future of urbanised landscapes (the production of territory) reflecting on new interdependencies between natural processes, societal practices and (geo)political projects. Throughout the studio, students will discuss their observations and statements with both teachers and external experts.</p>	
Study Goals	<p>Studio output and activities will be communicated through the Delta Urbanism website (deltaurbanismtudelft.org).</p> <p>Upon completion of the Master 3 & 4 studio trajectory the student:</p> <ul style="list-style-type: none"> - Has developed the skills in architectural design satisfying both aesthetic, programmatic and technical requirements. During the trajectory, the complexity of the architectural design increases leading to a level fit for architectural practice. - During this trajectory research skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology and human sciences. - Additionally, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and society's needs, including environmental aspects. - During Master 3 & 4 process skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing. - Together with the training with regard to aspects of building technology, during the Master 4 process skills are acquired to incorporate an understanding of the design process with regard to structural design, materialization of buildings, comfort and climate control. <p>The graduation report demonstrates the student's ability to employ moral sensibility, analysis, creativity, judgment, decision and argumentation skills regarding architectural ethics and his/her future role as architect. The individual graduation report should not only contain an elaboration regarding the Graduation Projects societal and disciplinary relevance, but has to also address design ethics and the way in which intercultural issues were addressed in the graduation project.</p>	
	<p>Studio objectives:</p> <ul style="list-style-type: none"> - To develop an innovative didactic exchange among the disciplines of Architecture, Urbanism, Landscape Architecture, Water Engineering and Policy Analysis; - To operate analytical research at the large territorial scale of lowlands (maritime, riverine and/or delta) regions and formulate a design brief; - To formulate a comprehensive architecture design strategy (considering the different spatial and temporal scales relevant for the design); - To elaborate and apply a comprehensive architecture research and innovative design reasoning; - To prepare students to work on both research innovation and design projects in design offices and governmental departments. <p>Learning objectives:</p> <ul style="list-style-type: none"> - Students will be able to operate a coherent, accurate and evidence-based analytical research at a large territorial scale of lowland regions; - Students specific architectural transcalar design task (from territorial to architectural scales); - Students will be able to share and integrate knowledge from other disciplines; - Students will be able to formulate a highly individualised design approach; - Students will be able to apply innovative design methodologies and creative techniques for their design; - Students will be able to select and apply comprehensive constructive techniques; - Students will be able to express and represent their design ideas at appropriate scales. 	
Education Method	<p>Studio meetings, individual meetings with your mentors, workshops and design masterclass, progress panels with external design critics, lecture series.</p> <p>Studio collective exhibition and symposium with invited external speakers at the end of each semester focusing on research results (Master 3) and design results (Master 4).</p>	
Assessment	See the Graduation Manual.	
Remarks	<p>There is an excursion to your location which is either the Dutch Delta or a foreign lowland (maritime, riverine, and/or delta) region.</p> <p>Transitional Territories Studio 2018-2019</p> <p>North Sea: Landscapes of Coexistence Altered Natures and the Architecture of Extremes</p> <p>For the academic year 2018-2019 the case study is the North Sea (as territory), focusing on the coastal landscapes of France, the Netherlands, Norway and Great Britain.</p>	

The excursion to the North Sea is not obligatory and optional for all students joining the studio. The excursion is organised by the studio on the fifth/ sixth week of the Master 3. We always try to find sponsors for part of the foreign excursion costs.

Period of Education

Semester

Maximum aantal deelnemers Max. 15 participants

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

Veldacademie

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

MSc 3, Veldacademie

AR3A160	Lecture Series Research Methods	6
Responsible Instructor	Dr.ir. P.J. Teerds	
Responsible Instructor	Dr.ir. K.M. Havik	
Course Coordinator	Dr.ir. P.J. Teerds	
Instructor	Dipl.ing. R.A. Gorny	
Instructor	M.F. Berkers	
Contact Hours / Week	28 hours per quarter	
x/x/x/x		
Education Period	1	
Start Education	3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	General Master 2 level of knowledge.	
Course Contents	<p>The lecture series will allow MSc 3 students from all the departments and chairs of our Faculty to reflect on and explore a series of methodological approaches, which should strengthen their architectural positions in the graduation studio, towards the conclusion of their formative process and the consequent obtainment of the corresponding degree.</p>	
Study Goals	<p>Students involved in this course are expected to operate at a final year Masters level, meaning they are responsible for performing critically within the series of concepts presented in the course; as well as individually fulfilling course requirements such as being acknowledged with the basics of scientific writing, formulating hypotheses and investigating at a level equivalent to their standing within the curricular track.</p> <p>This lecture series will address scientific integrity to make sure that architecture students develop the necessary skills for integer research approaches while being aware of the societal, political, physical and environmental impacts their research and design work has.</p>	
Education Method	<p>The lecture series aims to:</p> <ul style="list-style-type: none"> - Take advantage of the magnitude and diversity of the series. The line-up of lecturers, paired to the differences among the academic tracks followed by students from several chairs and departments, should substantially enhance each discussion, and promote creative approaches to each of the topics discussed. - Endow the students with clear knowledge of the heuristic nature of their work. The central thesis of the course is that all architectural activity is an exploration within identifiable disciplinary fields of experimentation, based on equally identifiable epistememes. Awareness of that explorative/cognitive capacity of architecture we sustain is a crucial element in the formation of an architect. - Present the students with a selection of relevant and progressive architectural methodologies and analytical strategies that are currently being used and discussed within the A+BE academic community and in other outstanding educational institutions. - Invite students to become engaged in these discussions actively, in order for their graduation processes to constitute real contributions to the professional debate that feeds our Faculty. It is expected that, with the information provided in this course, each graduation process aims to produce additional architectural knowledge in the face of established and ongoing research programs. - Focus on moral sensibility, analysis, creativity, judgment, and skills regarding architectural ethics when developing specific expertise. 	
Literature and Study Materials	<p>The course comprises two, parallel activities: A series of lectures and the preparation of a position paper. The lecture series is made up of seven sessions. Six have defined topics, the first is introductory. Each lecture session includes a 30+ min. presentation by a lecturer, a 30+ min presentation by a group of students, and a 30+ minute series of Q&A, presented to both lecturer and students. Each guest lecturer is responsible for submitting on the fore a reference text for students to prepare the session, and a paper of her authorship that exposes, summarizes or complements her presentation. Both documents will be made available to the whole group of students with sufficient anticipation.</p> <p>A group of students will be responsible for preparing each lecture. These groups will be formed during the course intro, and will divide themselves into a subgroup in charge of presenting the topic, and other subgroups in charge of preparing a series of debate topics and questions, for the closing discussion.</p> <p>The whole group of students in charge of preparing each session will participate in a workshop, in which they will be guided in the development of their presentation and the construction of different positions within the chosen topic, looking forward to the debate. These workshops will take place on Monday mornings, and will be tutored by the coordinators of the lecture series and/or staff from the chair of Methods and Analysis.</p> <p>Before entering each lecture session, the group of presenting/debating students will hand in a paper of their authorship (2000 words, aprox.) that exposes, summarizes or complements their presentation, the images that accompany their talk, the questions and debate topics developed to feed the debate, and any other addenda they consider necessary to support their understanding of the topic.</p>	
Assessment	<p>A reader will be distributed via Blackboard/Brightspace</p> <p>Each student is responsible to elaborate on her own reflections regarding the course, the debates, the literature that will be provided and suggested, and her own graduation process, by producing an individual position paper (aprox. 2000 2500 words), following scientific standards of writing and structuring her topics (acknowledging a state of the art for a particular discussion, for example) towards the construction of a methodological apparatus in affinity with her own intentions and inclinations.</p> <p>Upon request, specific tutoring/workshops for this second component are available, in the same group format utilized for the preparation of the sessions.</p> <p>In order to attend one of these tutorials, interested students must submit a full draft of their essay, including their name, student number and current chair/graduation studio. The submission deadline for this draft will be specified at the beginning of the period.</p> <p>The course coordination will group the drafts and submit them to available tutors, by topic affinity. These tutors will read the drafts and subsequently organize a workshop with small groups of students. The aim of these workshops are to clarify doubts, elaborate on formal and stylistic concepts, and contribute thematically to the development of the final versions of the papers.</p> <p>The fact that extra tutoring is available does not mean that the students are not encouraged to also seek additional support from their teachers in the other courses that constitute the graduation track.</p> <p>Position papers are expected to be approximately 2000 2500 words in length, and should comply with academic and scientific standards in terms of form and style.</p> <p>The fundamental aim of this assignment is to enable students to formulate a sound and consistent architectural position, in the</p>	

	<p>face of the broader discussions presented as a partial state of the art of professional discussion, both within our Faculty and in contemporary architecture culture.</p> <p>Articulating a position requires knowledge and understanding of a diverse array of postures, which are carefully considered in response to the problems of our time. Getting acquainted with diverse sources, authors and architectural examples; articulating the information contained in these sources; abstracting and operating with the useful and/or relevant ideas they represent; and (hopefully) further elaborating them into progressive architectural models; are all goals of this exercise.</p> <p>It is assumed that the reflections generated during the course, and the resulting position paper, are active components of the broader exploration that is the graduation project. Research, reflection, discursive elaboration and historical contextualization are fundamental parts of a complete architectural intervention, meant to perform in site- and cultural-specific conditions, but also in the broader intellectual framework that is the architecture of our time.</p> <p>In this sense, reflections should elaborate on the central concepts, methods and tools employed in the development of the architectural explorations leading to the Masters degree, at a level that transcends the simple description of steps taken in the elaboration of a project.</p> <p>Cases of plagiarism will be dealt with according to standard procedures established by the corresponding authorities within the University.</p>
Special Information	<p>Each period will include a normal deadline for the presentation of the final position papers. Papers handed in within this deadline will be graded normally.</p> <p>An extra hand-in moment will be offered for late papers, around the middle of the following academic period. Papers presented for this extra hand-in moment will only be evaluated in terms of pass (6,0/10,0) and fail (5,0/10,0 and under).</p>
Remarks	<p>Position papers will be evaluated on the following items:</p> <ul style="list-style-type: none"> - Has a question been clearly defined? - Has the question been developed beyond its initial formulation? - Does the paper acknowledge a state of the art, regarding this question? - Has a position been taken, in relation to this state of the art? - Is the paper coherent/concise? - Does the paper follow a clear methodology? - Are the sources pertinent, and well used? - Is the language adequate?
Period of Education	<p>Lectures take place during the first quarter of the period.</p> <p>The second quarter of the period is used for the production of final position papers.</p> <p>Individualized tutoring is offered upon request, to students who require extra help in the process of writing their papers, during this second quarter.</p>
Course evaluation	<p>The course will be graded on the basis of a final, position paper, worth 100% of the grade assignable to the Lecture Series. This position paper is expected to range between 2000-2500 words, and must be submitted before a specified deadline.</p> <p>Only papers accepted and graded with a mark above 5,0/10,0 will be eligible for re-takes or further corrections.</p> <p>Close attention must be paid to the fact that a passing grade in this course is necessary to apply for a Studio P4 presentation. Please note that the deadline for the presentation of these papers is indicated since the very beginning of the semester. This should allow you to plan the development of your essay without interfering with other deadlines. Conflicts with other courses should be negotiated with the Board of Examiners.</p>

AR3VA025	Action Research	9
Responsible Instructor	Ir. O.G.C. Trienekens	
Responsible Instructor	Dr.ir. M.J. van Dorst	
Course Coordinator	Dr.ir. M.J. van Dorst	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Special Information	The maximum marking period is 10 work days.	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR3VA110	Graduation Studio Veldacademie: Architecture	15
Responsible Instructor	Ir. O.G.C. Trienekens	
Responsible Instructor	L.A.M. Willekens	
Responsible Instructor	Dr.ir. M.J. van Dorst	
Course Coordinator	Dr.ir. M.J. van Dorst	
Contact Hours / Week x/x/x/x	X/X/X/X	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Course Contents	Veldacademie is a practice-driven, on-site studio for students who are willing to deal with the challenging reality of the Rotterdam context.	
	Regenerating the City - Architectural strategies for inner-city redevelopment.	
	The second year of the Master of Architecture programme consists of two semesters, Master 3 (30 credits) and Master 4 (30 credits), both completely dedicated to the graduation project. Students have a unique opportunity to do an in-depth research and design project in the field of architecture.	
	This course is the first part of the graduation laboratory. Students develop a graduation project individually within the context of Veldacademie.	
	Dealing with complexity	
	Many districts in Rotterdam and other European cities face complex social-economical issues and degeneration. Making a design for a regeneration area demands a deep understanding of this complexity. How do social, physical and economical conditions relate to design? What about existing social structures? And how to deal with cultural heritage? And the people?	
	Interaction, Research & Design	
	At Veldacademie the student is able to get in touch with the daily reality in Rotterdams urban living environments.	
	Veldacademies workspace is situated in one of Rotterdams priority regeneration areas. Being on location, the student will experience the interaction between inhabitants, municipality, housing corporations, real estate developers and other stake holders and participate in it himself. Veldacademie also cooperates with other educational and research institutes such as Erasmus University Rotterdam. Veldacademie facilitates students fascinated by interdisciplinary research and design, and willing to work with real people, actually contributing to the sustainable improvement of the city of Rotterdam.	
	Projects include transformation of existing housing stock and industrial heritage, design of public services, educational facilities, care en elderly facilities.	
Study Goals	The student	
	develops adequate skills in order to translate the complex characteristic of the context into a program of demands and subsequently into a spatial design intervention.	
	acquires skills and insights needed to position him(her)self in complex settings.	
	learns to make an in-depth site-specific survey and analysis using research methods like the Leefveldenanalyse.	
	is able to connect social processes to architectural development.	
	learns to acquire and make use of quantitative data as well as qualitative data through GIS, interviews, observation etc.	
	is able to define a problem statement and can distinguish the generic as well as the site specific implications of this question.	
	Subsequently he learns to derive a set of design goals from the fieldstudy.	
	Gains insight in architectural issues from a multi-perspective viewpoint and can position him(her)self in the field of different interests through the confrontation with real actors of the project area(s). Moreover the student learns to apply design as a communicative means between professional as well as non-professional stakeholders.	
	is able to determine the focus, the scope and its societal relevance of the design intervention and is able to explore and reflect on the future need of practise of architecture.	
	is able to position his role in relation to other disciplines like governance, real estate development, sociology and urbanism.	
	The graduation report demonstrates the students ability to employ moral sensibility, analysis, creativity, judgment, decision and argumentation skills regarding Architectural ethics and his/her future role as architect. The individual graduation report should not only contain an elaboration regarding the Graduation Projects societal and disciplinary relevance, but has to also address design ethics and the way in which intercultural issues were addressed in the graduation project.	
Education Method	The MSc 3 program can be seen as the preparation of the MSc 4 design program. In MSc 3 the focus is put on learning how to deal with the complexity of our contemporary profession and to gain the theoretical and site-specific knowledge that is needed to be able to develop an architectural intervention in the MSc 4. Veldacademie provides a practice based research environment for the research and design studio. This in addition to the theoretic and academic background provided by the architectural courses.	
	The student thereby works in an interdisciplinary group of students, on site.	
Literature and Study Materials	Available at Veldacademie	
Assessment	The assessment is embedded in the 'Graduation Regulations' of the Faculty of Architecture, Urbanism and Building Sciences. In this course the project is evaluated two times: P1 (week) and P2 (week).	
Special Information	www.veldacademie.nl	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

Year	2018/2019
Organization	Architecture
Education	Master Architecture, Urbanism & Building Sciences

MSc 4 Veldacademie

AR4VA110	Graduation Studio Veldacademie: Architecture	30
Responsible Instructor	Ir. O.G.C. Trienekens	
Responsible Instructor	L.A.M. Willekens	
Responsible Instructor	Dr.ir. M.J. van Dorst	
Course Coordinator	Dr.ir. M.J. van Dorst	
Contact Hours / Week x/x/x/x	X/X/X/X	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Course Contents	<p>Veldacademie is a practice-driven, on-site studio for students who are willing to deal with the challenging reality of the Rotterdam context.</p> <p>Regenerating the City - Architectural strategies for inner-city redevelopment.</p> <p>The second year of the Master of Architecture programme consists of two semesters, Master 3 (30 credits) and Master 4 (30 credits), both completely dedicated to the graduation project. Students have a unique opportunity to do an in-depth research and design project in the field of architecture. This course is the first part of the graduation laboratory. Students develop a graduation project individually within the context of Veldacademie.</p> <p>Dealing with complexity</p> <p>Many districts in Rotterdam and other European cities face complex social-economical issues and degeneration. Making a design for a regeneration area demands a deep understanding of this complexity. How do social, physical and economical conditions relate to design? What about existing social structures? And how to deal with cultural heritage? And the people?</p> <p>Interaction, Research & Design</p> <p>At Veldacademie the student is able to get in touch with the daily reality in Rotterdams urban livingenvironments.</p> <p>Veldacademies workspace is situated in one of Rotterdams priority regeneration areas. Being on location, the student will experience the interaction between inhabitants, municipality, housing corporations, real estate developers and other stake holders and participate in it himself. Veldacademie also cooperates with other educational and research institutes such as Erasmus University Rotterdam. Veldacademie facilitates students fascinated by interdisciplinary research and design, and willing to work with real people, actually contributing to the sustainable improvement of the city of Rotterdam.</p> <p>Projects include transformation of existing housing stock and industrial heritage, design of public services, educational facilities, care and elderly facilities.</p>	
Study Goals	<p>The student</p> <ul style="list-style-type: none"> develops adequate skills in order to translate the complex characteristic of the context into a program of demands and subsequently into a spatial design intervention. acquires skills and insights needed to position him(her)self in complex settings. learns to make an in-depth site-specific survey and analysis using research methods like the Leefveldenanalyse. is able to connect social processes to architectural development. learns to acquire and make use of quantitative data as well as qualitative data through GIS, interviews, observation etc. is able to define a problem statement and can distinguish the generic as well as the site specific implications of this question. Subsequently he learns to derive a set of design goals from the fieldstudy. Gains insight in architectural issues from a multi-perspective viewpoint and can position him(her)self in the field of different interests through the confrontation with real actors of the project area(s). Moreover the student learns to apply design as a communicative means between professional as well as non-professional stakeholders. is able to determine the focus, the scope and its societal relevance of the design intervention and is able to explore and reflect on the future need of practise of architecture. is able to position his role in relation to other disciplines like governance, real estate development, sociology and urbanism. <p>The graduation report demonstrates the students ability to employ moral sensibility, analysis, creativity, judgment, decision and argumentation skills regarding Architectural ethics and his/her future role as architect. The individual graduation report should not only contain an elaboration regarding the Graduation Projects societal and disciplinary relevance, but has to also address design ethics and the way in which intercultural issues were addressed in the graduation project.</p>	
Education Method	<p>The MSc 4 program is the continuation of the MSc 3 program. In MSc 4 the focus is put on the individual development of a spatial design intervention. Veldacademie provides a practice based research environment for the research and design studio. This in addition to the theoretic and academic background provided by the architectural courses. The student works in an interdisciplinary group of students, on site.</p> <p>Design Guidance: 112 hrs. \ Self study: 728 hrs.</p>	
Literature and Study Materials	Available at Veldacademie	
Assessment	The assessment is embedded in the 'Graduation Regulations' of the Faculty of Architecture, Urbanism and Building Sciences. In this course the project is evaluated three times: P3 (week), P4 (week), and finally P5 (week).	
Special Information	The maximum marking period is 10 work days.	
Period of Education	www.veldacademie.nl	
Course evaluation	Engels	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

variant Building Technology

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

MSc 1 Building Technology

AR0531	Innovation and Sustainability	6
Responsible Instructor	Ir. E.R. van den Ham	
Responsible Instructor	Ir. P.G. Teeuw	
Responsible Instructor	Prof.dr.ir. A.A.J.F. van den Dobbelsteen	
Course Coordinator	Ir. E.R. van den Ham	
Contact Hours / Week x/x/x/x	X/X/X/X	
Education Period	1 2	
Start Education	1	
Exam Period	none	
Course Language	English	
Required for	Msc Track Building Technology; CiTG Msc Building Engineering.	
Summary	The course Innovation & Sustainability presents the latest developments in sustainable building design, with the focus on climate design, facade design, structural design. This done through a series of lectures by researchers from the Architectural Engineering & Technology department and guest lecturers.	
	As a final product a designers manual or movie-clip will be developed with the focus on sustainable climate design, façade design or structural design.	
	This course can be a part of the TU graduation specialization 'Technology in Sustainable Development' (TiDO), see: www.tudelft.nl/TiSD	
Course Contents	The first part of the course consists of lectures on smart & bioclimatic architecture and urban planning, sustainable energy technology, new developments in façade technology and sustainable materials in structural design.	
	Based on the lectures and their own fascination the students individually do a literature study on a chosen topic, resulting in a scientific (review) paper.	
	In the second part of the course teams of students are working on a designer's manual or educational movie-clip based on the previous individual research. During this process there are weekly group tutorings. The designer's manual will be presented mid-term and when finished. In-between, the students need to study (literature and desk investigations) and work independently.	
Study Goals	After successfully completing this course the student:	
	- is able to comprehend the need for a new way to design our built environment to meet the challenges our planet is up against	
	- is able to identify the possibilities and techniques and societal/ethical consequences to apply specific environmental and climatic features, innovative materials and production techniques in the design of a sustainable building	
	- is able to integrate the mentioned possibilities and techniques in the architectural or urban concept (smart & bioclimatic design, innovation façade design and smart structural design)	
	- is able to research a chosen aspect of possibilities or techniques in depth	
	- is able to write a scientific review paper with proper referencing	
	- is able to organize this research into a practical and well-designed manual or movie-clip for designers	
	- is able to present his manual verbally and visually in a convincing way	
Education Method	Lectures: 30 hours	
	Tutorials and presentations: 20 hours	
	Workshops: 8 hours	
	Self study: 110 hours	
	We call the education method self-directing learning: students pick their own topic, collect information on this topic and process this into a paper and a designer's manual or educational movie-clip.	
	The first part of the course offers various lectures. After these lectures a test will be taken.	
Literature and Study Materials	- Lecture slides and a reader with background information will be available on Brightspace	
	- Furthermore, students need to survey the library and internet for information on their specific topic	
Assessment	First part individual:	
	Written paper/essay (max 2.500 words).	
	An online test based on the lectures.	
	The final grade for the first individual part is calculated as the weighted average of the grade for the paper (weight 2) and the test (weight 1).	
	Second part group work (teams of 3 students):	
	Assessment of the designers manual or movie-clip 50% research/contents; 50% design and information transfer.	
	The final grade is the weighted average of the individual grade for the first part (2/3) and the group grade for the manual / movieclip (1/3).	
Special Information	The maximum marking period is 15 work days.	
Remarks	We expect that students who subscribe to this course, will attend all lectures. Our experience is that students do not finish the course if they fail to attend repetitively. The lectures are in the first 5 weeks of the semester on Monday afternoon and Thursday afternoon.	
Period of Education	Semester	

AR1B015-D1	Bucky Lab Design - Design	7
Responsible Instructor	Dr.ing. M. Bilow	
Course Coordinator	Dr.ing. M. Bilow	
Contact Hours / Week x/x/x/x	12 hours per week	
Education Period	1 2	
Start Education	1	
Exam Period	none	
Course Language	English	
Required for	Graduation in Master track Building Technology.	
Expected prior knowledge	Bachelor Architecture	
Course Contents	The focus of the semester is an innovative building construction or facade design for an architectural related building, this may be a part of a building, a pavillion or a facade. The task is a building component in which all the important technical and architectural aspects of a building are integrated in. The first three weeks students individually research and analyse the assignment in order to come up with an innovative concept. The remaining weeks of the semester are dedicated to a design by research process in which all the main aspects of the design, from applied mechanics, material propertie to production techniques are researched ending in an integrated final design. Computer modeling, virtual and full scale material prototyping are part of the process.	
Study Goals	The student has a basic understanding the field of science of Building Technology. The student is able to design a building component understanding the relation between design, society, realisation, materialisation and functioning. The student is able to test and evaluate the design on functioning and performances. The student is competent in collatorating with fellow students.	
Education Method	Design consultation and computer modeling.	
Computer Use	Intensive computer modeling.	
Assessment	Individual report of innovative concept and reports in team of two students of design by research process from concept to final design, main focus the level of integration of all the researched aspects.	
Special Information	The maximum marking period is 10 work days. First three weeks innovative concepts individually, remaining period teams of two up to 10 students colaborating to final design.	
Period of Education	Semester	
Concept Schedule	Quarter 1: introducing the necessary knowledge, second quarter applying knowledge in computer modeling of the design by research process.	
Used Materials	Computer modeling in Diana, Rhino and Grasshopper.	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1B015-D2	Bucky Lab Design - CAD	3
Responsible Instructor	Dr. S. Asut	
Course Coordinator	Dr. S. Asut	
Instructor	Ir. J.J.J.G. Hoogenboom	
Contact Hours / Week x/x/x/x	37 hours per semester	
Education Period	1 2	
Start Education	1	
Exam Period	none	
Course Language	English	
Summary	<p>You will use the computer in support of the design process in the various phases of design. You will build, in preparation for the physical prototype, a virtual master model or virtual prototype. This model serves as the source for the various required geometrical data used for analysis and rapid / digital prototyping.</p>	
Course Contents	<p>The complexity of the architectural multi-actor design and building process combined with the integration of experience based knowledge in a highly conventionalized framework makes it a challenging environment to implement an effective communication of the design and design intent.</p> <p>Today this communication is still primarily taking place in the form of two-dimensional shop drawings following strict conventions. However, the description of a three dimensional object by a composite of two dimensional representations makes it prone to misinterpretation, gaps in information and errors in the drawings themselves.</p> <p>An additional problem is the amount of drawings necessary to define the design. It can be enormous, which makes alterations of the drawings time consuming and necessitates a strict protocol for checking the drawings after implementing the alterations. This problem is recognized by the industry and we can see a development of digital design support tools towards a more three dimensional digital design environment. The unambiguous three-dimensional design representation contains more information than the 2D representation and can be used as an effective basis for communication and extracting data for analysis, simulation and digital manufacturing. This concept of 3D design and development is entering more and more the realm of architecture. However the structure, in which the data can be integrated, simulated and altered has to facilitate flexibility to support the design process without becoming too much of a steering influence on the design process itself. The digital design support tools which are available are numerous and diverse, however the properties of the tools will define their suitability for implementation in the design process.</p> <p>In this course, we use an approach of concentrating the formal design data in a single 3 dimensional digital description of the design, a master model or virtual prototype. We consider the different design phases, which demand different functionality of the digital design support tools. In the concept design phase enhanced flexibility and speed in design are key criteria for an effective implementation of digital design support. By applying a parametric environment, a powerful design environment is created where rapid generation of 3 dimensional design variations can be supported. By modelling parametric 3D geometry the flexibility in design and communication of the design data is generated, making it possible to effectively use multiple digital design support tools during the design whole process.</p> <p>In the design development phase, the advanced modelling tools of Rhino and Grasshopper are used to support the design development process. The resulting 3D model will support enhanced insight into the design through analysis and simulation and enables the designer to pre-empt potential assembly conflicts or investigate material and manufacturing solutions. This single 3D digital model is used as a basis for analysis and digital manufacturing.</p> <p>The final phase consists of the conversion of the digital data for analysis and manufacturing and the digital manufacturing and rapid prototyping itself. We will look at how the milling, laser cutting and 3D printing machines can be used and what kind of digital manufacturing techniques are available in the industry.</p>	
Study Goals	<ul style="list-style-type: none"> - The student has knowledge of parametric design. - The student can create a 3d virtual prototype of the design for simulation, analysis and digital manufacturing and fabrication. - The student has knowledge about various digital manufacturing techniques. - The student has knowledge of and can use the computer in support of the various stages of the design process. 	
Education Method	<p>Lectures are integrated into the workshops Workshops: 28 hours Independent Study: 56 hours</p>	
Computer Use	Computers are available at the BT lab.	
Literature and Study Materials	Toi pedia	
Assessment	<p>Assignments Written report (digital) and 3d digital file of the virtual prototype</p>	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1B015-D3	Bucky Lab Design - Production Technique	2
Responsible Instructor	Dr.ing. M. Bilow	
Course Coordinator	Dr.ing. M. Bilow	
Contact Hours / Week x/x/x/x	X/X/X/X	
Education Period	1 2	
Start Education	1	
Exam Period	none	
Course Language	English	
Expected prior knowledge	Bachelor of Architecture	
Course Contents	Material Prototyping of students own design of an innovative building construction or facade component with shop drawings, instruction in production techniques resulting in a material prototype built by students.	
Study Goals	The student has a basic understanding the field of science of Building Technology. The student is able to design a building component understanding the relation between design, society, realisation, materialisation and functioning. The student is able to test and evaluate the design on functioning and performances. The student is competent in collatorating with fellow students.	
Education Method	Design consultation and instruction production techniques.	
Computer Use	Sometimes use of Computer Aided Manufacturing facilities.	
Course Relations	Integral part of AR1AE015.	
Assessment	Report of the protoyping process showing understanding the importance of material properties and properties of production techniques for a architectural engineer.	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1B025-D1	Bucky Lab Seminars - Structural Mechanics	3
Responsible Instructor	P. Eigenraam	
Course Coordinator	P. Eigenraam	
Contact Hours / Week x/x/x/x	X/X/X/X	
Education Period	1 2	
Start Education	1	
Exam Period	none	
Course Language	English	
Expected prior knowledge	Statics and strength of materials as given in the Bachelor studies at the Faculty of Architecture and the Built Environment.	
Course Contents	The course covers the theory of elasticity for statically indeterminate beam structures and plates loaded in- and out of plane. This includes the theory for stresses and deformations of structures and describes these analytically. An introduction will be given of the use of software for structural analysis. The theory and software will be applied within an assignment which instructs a structural analysis within a design context. Analytical and computer calculations will be used. Glossary: Indeterminate means that the support reactions of a structure cannot be determined by using equilibrium of forces only; In- and out of plane means that the direction of the loading is respectively in the direction of the surface and perpendicular to it; Software for structural analysis is used for complex structural calculations which are practically impossible to do by hand; Analytical means that results can be described mathematically and that the can be obtained by hand calculations	
Study Goals	The student has a basic understanding of stresses and deformations for beam and plates structures. The student has the skills to perform and optimise a basic structural analysis.	
Education Method	Independent study Lectures Workshops Tutoring of small groups (2-4 students)	
Computer Use	Structural analysis using the finite element method in various computer programs.	
Reader	Mechanics of materials; James M. Gere Reader plate analysis Tutorials workshops	
Assessment	Written exam Design exam with report	
Period of Education	Semester 1	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1B025-D2	Bucky Lab Seminars - Material Science	3
Responsible Instructor	Dr.ir. F.A. Veer	
Course Coordinator	Dr.ir. F.A. Veer	
Contact Hours / Week x/x/x/x	20 hours per semester	
Education Period	1 2	
Start Education	1	
Exam Period	none	
Course Language	English	
Course Contents	Materials science for Building Technology.	
Study Goals	The student: - has knowledge of science of materials and relevance for building technology- Knowledge of properties of materials - has knowledge of structure of materials - has knowledge of the relationship between properties of materials and structure of materials - has knowledge of the possibilities for influencing the structure	
Education Method	Lectures: 14 hours CES exercises: 16 hours Lab work and independent study	
Computer Use	Computer necessary for exercises.	
Course Relations	All other course in Building Technology.	
Literature and Study Materials	To be announced.	
Practical Guide	On blackboard.	
Books	To be announced.	
Assessment	Examination and several assignments.	
Permitted Materials during Tests	All written, printed and electronic materials.	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Semester	
Maximum aantal deelnemers	64	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1B025-D3	Bucky Lab Seminars+ - BT Research Methodology	3
Responsible Instructor	Dr.ir. M.J. Tenpierik	
Course Coordinator	Dr.ir. M.J. Tenpierik	
Instructor	Dr.ir. F.A. Veer	
Instructor	Dr. R.M.J. Bokel	
Instructor	Prof.dr.ir. P.M. Bluijssen	
Instructor	P. Eigenraam	
Contact Hours / Week x/x/x/x	4 hours per week	
Education Period	1	
Start Education	1	
Exam Period	none	
Course Language	English	
Course Contents	Research is a way to generate new insights and new concepts for design in a systematic way. Einstein once said: If we knew what it was we were doing, it would not be called research, would it? Research is exploring new realms and finding answers beyond the state of the art. It is the cornerstone on which all progress in our modern society is founded. Methodology shows us the way how to conduct research in a systematic and reliable way. In the course research methodology for building technology you will learn how to set-up a technical-scientific research framework for experimental research, simulations, surveys, case studies and research by design; and how to consistently and coherently report the results of such research.	
Study Goals	After successfully completing this course, you will: (a) be able to conscientiously set-up a technical-scientific research framework for experimental research, simulations, surveys, case studies and research by design; (b) be able to write a consistent, coherent and well-structured research report and review paper; (c) understand the complex relationship between research and design as two aspects within building technology; (d) be able to reflect on the importance of scientific integrity and are able to identify ethical issues when doing research.	
Education Method	This course will consist of a series of lectures with accompanying literature and five practical workshops. For one of these workshops you will have to write a research report. Furthermore, you will have to write a review paper on a topic of your own choice.	
Literature and Study Materials	An overview of compulsory literature will be specified on BrightSpace.	
Assessment	Your grade for this course will be based on the report that you write for one of the practicals and on the review paper you have to write for this course.	
Special Information	The maximum marking period is 15 work days.	
Period of Education	Quarter	

AR1B025-D4	Bucky Lab Seminars+ - Building Physics	3
Responsible Instructor	Dr. R.M.J. Bokel	
Course Coordinator	Dr. R.M.J. Bokel	
Responsible for assignments	Dr. G.J. Hordijk	
Contact Hours / Week x/x/x/x	4 hours per week	
Education Period	2	
Start Education	2	
Exam Period	2 3 4	
Course Language	English	
Required for	Graduation Building Technology Technoledge Climate Design (AR0125)	
Expected prior knowledge	Bachelor Architecture (or equivalent)	
Course Contents	A Building Technology graduate is expected to have an advance knowledge of building physics in order to be able to design buildings that go beyond the obvious in such a way that a building technology graduate does not have to rely on the Building Technology Advisors but can directly incorporate this knowledge into his/her design. This course teaches you advanced knowledge on time-dependent energy calculations, the relationship between openings in a building and visual comfort, and sound propagation through walls and openings.	
Study Goals	<p>The student can:</p> <ul style="list-style-type: none"> Explain and calculate the thermal behaviour of earth ducts, flat plate solar collectors, sun spaces, second skin facades, atria, and floor heating. Explain and calculate the stationary heat transfer through construction elements (including different types of glazing) and the heat transfer from the surface of those elements to the environment. Compare the effect of design decisions on the (dynamic and static) heat transfer. Explain the difference between wind and temperature driven ventilation and calculate the amount and the energy demand (air exchange energy and air movement energy) through ventilation. Compare the various forms of evaporative cooling and calculate the appropriate amount of water and cooling. Explain the effect of the size and position of openings in a facade on the daylight access, visual comfort and character of the room behind. Predict the sound propagation through several wall construction types and ventilation apertures, with a particular emphasis on the transmission of external noise through a facade Methodically assess whether or not a facade (design) meets acoustic requirements concerning sound transmission. 	
Education Method	Lectures Computer and/or practical exercises	
Computer Use	The students will use the computer programs Design Builder (thermal) and BOA (acoustics)	
Course Relations	This course is a preparation for the courses MEGA and Extreme.	
Literature and Study Materials	<p>The Study materials are:</p> <p>Thermal/Energy: Lecture notes Energy, chapters 1-6 (available on blackboard)</p> <p>Acoustics: Building Physics by A.C. v.d. Linden; section 11.5 and chapter 12 Lecture Notes on Building Acoustics, chapters 1, 3, 4 and 8 (available on Blackboard)</p>	
Assessment	Knowledge of the theory is tested through a written examination which is 90% of the final mark (40% acoustics and 50% thermal). The acoustics computer practical accounts for 10% of the mark and is assessed through a written report. The thermal computer practical is assessed though a written report (pass/fail).	
Exam Hours	3 hours (1.5 hours for acoustics, 1.5 hours for thermal/energy)	
Permitted Materials during Tests	calculator, equation sheets for acoustics and for thermal	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Quarter	
Concept Schedule	Thursday mornings	
Leerstoel	Building Physics and Building Services	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

Starting Course MSc1

ARX071	Workshops Faculty of Architecture and the Built Environment	1
Responsible Instructor	Dr.ir. R. Cavallo	
Contact Hours / Week x/x/x/x	X / 0 / 0 / 0	
Education Period	1	
Start Education	1	
Exam Period	none	
Course Language	English	
Course Contents	<p>All new MSc students of the Faculty of Architecture and the Built Environment will start the academic year 2018-2019 with a 3-day workshop programme on 30 & 31 August and 3 September 2018.</p> <p>The programme is developed in cooperation with TPM colleagues of the section "Ethics & Philosophy of Technology". With a mix of lectures, workshops and sessions guided by teachers of the faculty, you will be introduced to (design) ethics, scientific integrity and intercultural communication.</p> <p>With these workshops you will make a first start to cover the ethics engineering learning goals of the MSc programmes. Further, we wish to enhance the interaction between all new students, both Dutch and International, and to introduce you to settings, methods and procedures of the faculty.</p> <p>Participation in the workshops is mandatory for all students starting their MSc 1 programme in September.</p>	
Study Goals	- The student has a basic understanding of moral sensibility, moral analysis skills, moral creativity, moral judgement skills, moral decision-making skills and moral argumentation skills.	
Education Method	Lectures, workshops, role playing game, assignment	
Assessment	Workshops attendance Assessment: V (passed) or NV (failed)	
Special Information	<p>The academic year will start with a three day workshop programme. With a mix of lectures, workshops and sessions guided by teachers of the faculty, you will be introduced to (design) ethics, scientific integrity and intercultural communication. With these workshops you will make a first start to cover the ethics engineering learning goals of the MSc programmes. Further, we wish to enhance the interaction between all new students, both Dutch and International, and to introduce you to settings, methods and procedures of the faculty. The workshops will lay the foundation for your master studies. It is highly recommended for both Dutch and International students to participate in this programme and you will be granted 1 EC after following the whole programme. This EC will be used in your electives list Master 2/3.</p> <p>For more information see website: https://www.tudelft.nl/studenten/faculteiten/bk-studentenportal/onderwijs/master-of-science/workshops-master-students/</p>	
Period of Education	3 days	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

MSc 2 Building Technology

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

Compulsory Choice

AR0028	Bridge Design	6
Responsible Instructor	Ir. J.E.P. Smits	
Course Coordinator	Ir. J.E.P. Smits	
Instructor	D.T. Jauslin	
Instructor	R. Gkaidatzis	
Contact Hours / Week x/x/x/x	8 hours per week	
Education Period	3	
Start Education	3	
Exam Period	none	
Course Language	English	
Course Contents	Bridge Design; an integral approach through landscape, architecture and structure.	
Study Goals	<p>The design of bridges is a fascinating field of work. Whether it is a simple crossing or an intricate steel structure; a bridge appeals to the imagination. Bridges overcome barriers, create connections and bring people together who were thus far separated. Whether a bridge is part of an urban context or a landscape setting, bridges are symbols of culture that deserve the attention of good designers.</p> <p>The attention for the aesthetic design of infrastructure is growing since the 90s. Bridges are no longer seen as mere functional objects. For a long time, the design of infrastructure works have been the sole domain of the engineer. Nowadays bridges, viaducts, tunnels, and even whole road designs have obtained a renewed interest from architects, landscape architects and urban planners. Yet the number of architects and landscape architects with a solid portfolio in this area is very limited. Engineering companies that specializes in bridge design lack the skills to make an aesthetically pleasing design that is firmly embedded in the context and forms part of a public space of high quality.</p> <p>Bridge Design' is an elective in MSc2 which aims for students in the master tracks of either Architecture, Urbanism, Landscape Architecture and Architectural Engineering + Technology, but also CiTG or ID students are welcome. The course focuses on the design of infrastructures such as a bridge or a series of infrastructures such as a route design. The design process stretches from the integration of the design in the urban or landscape context to the architectural engineering of the design.</p> <p>The student gets familiarized with the multidisciplinary design process and the different disciplines involved in the design of a bridge/civil structure. The student is able to derive design criteria for the bridge/civil structure from the spatial and societal context. The student is able to structurally elaborate a conceptual design of a bridge/civil structure. The student acquires knowledge of the different disciplines involved in the design of a bridge/civil structure such as: landscape design, urban design, architectural design and structural design.</p>	
Education Method	Lectures, Design studio, Masterclasses from renowned bridge designers,	
Assessment	Students are asked to work in pairs(multidisciplinary), in which different aspects of the assignment are addressed.	
Special Information	Oral presentation of the final design. +Posters or slides with texts, drawings and images. +physical models. Assessment by the course manager and other lecturers.	
Elective	The maximum marking period is 10 work days.	
Period of Education	Yes	
Maximum aantal deelnemers	Q3, 10 thursdays: 3.1 thursday all day; menditory excursion 3.2 thursday morning; tutoring 3.3 thursday morning; tutoring 3.4 thursday all day; menditory masterclass 1 3.5 thursday morning; tutoring 3.6 thursday morning; tutoring 3.7 thursday all day; menditory masterclass 2 3.8 thursday morning; tutoring 3.9 thursday morning; tutoring 3.10 thursday all day; menditory final presentations	

AR0092	Zero-Energy Design	6
Responsible Instructor	Ir. S. Broersma	
Responsible Instructor	Prof.dr.ir. A.A.J.F. van den Dobbelsteen	
Course Coordinator	Ir. S. Broersma	
Instructor	Dr.ir. L.J.J.H.M. Gommans	
Contact Hours / Week x/x/x/x	4 hours per week	
Education Period	3 4	
Start Education	3	
Exam Period	none	
Course Language	English	
Course Contents	The urgent (inter)national issue of an energetically poor performing existing building stock is the subject of Zero Energy Design. Within the assignment, an existing residential building block has to be transformed into a zero energy building. The focus of the course lies on a well-integrated climate design/energy system with the ambition of energy neutrality and beyond. With the successive steps of reducing the demand, re-using waste streams and producing the remaining demand on site with renewables (of the New Stepped Strategy), a combination of smart measures has to be defined to reach this goal. Smart energy connections with the surrounding built environment will also be considered. With an energy potential mapping analysis of the neighbourhood and an energy performance calculation program, tools are provided to quantify and prove the final energy performance. To become energy neutral, not only the building related energy (for HVAC: Heating, Ventilation and Air-conditioning) but also the user- and material related energy have to be compensated for by sustainable production at site, making the goal a real challenge.	
Study Goals	The student is able to: - develop an integrated energy-neutral climate design - make energy calculations and optimise the energy performance of a building	
Education Method	Lectures, interactive lectures, computer exercises, writing a report, presenting. The assignment will be completed in groups of 3 or 4. Individual design skills are preferred, but each group must have at least one student with an architecture background.	
Assessment	Knowledge of the theory is tested through a report and an oral presentation.	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Semester	
Maximum aantal deelnemers	30	

AR0105	Technoledge Structural Design	6
Responsible Instructor	Prof.ir. R. Nijse	
Responsible Instructor	Dr.ir. F.A. Veer	
Course Coordinator	Dr.ir. F.A. Veer	
Instructor	Dr.ir. F.A. Veer	
Instructor	Ir. A. Borgart	
Instructor	Dr.ir. P.C. Louter	
Instructor	F. Oikonomopoulou	
Instructor	P. Eigenraam	
Contact Hours / Week x/x/x/x	8 hours per week	
Education Period	3	
Start Education	3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	Prerequisites: AR1B025-D1 and AR1B025-D2	
Course Contents	This elective course aims to teach building technology students how to design structures balancing the needs for architecture and engineering. The course is not geared into showing students how to validate a design using the building codes, but to teach students how to design structures from first principles in an innovative way using different materials. For a given problem of a small isolated structure which visually dominates its surroundings two alternative designs need to be made. One design will be made in glass, the other in more conventional materials. The glass designs needs to be optimized in terms of minimum visibility, the other design needs to be optimized to minimum weight. Both designs need to be validated.	
Study Goals	The student is able to: - analyse a structural design problem - design a complex, for one purpose optimized, structure in different materials based on basic structural engineering principles.	
Education Method	7 series of four one hour lectures followed by 7 design workshops lasting one afternoon. There is weekly homework counting for 5% of the total grade each. There are three presentations, in week 2, 4 and 7; counting for 5% of the total grade. At the end of the course each group needs to hand in a rapport describing the design process, the design and showing all the validation steps. This counts for 50% of the total grade.	
Assessment	There are two presentations, in week 5 and 9 counting for 30% of the total grade. At the end of the course each group needs to hand in a rapport describing the design process, the design and showing all the validation steps. This counts for 70% of the total grade.	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Quarter	
Maximum aantal deelnemers	32	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR0115	Technoledge Facade Design	6
Responsible Instructor	Prof.dr.ing. U. Knaack	
Responsible Instructor	Ir. A.C. Bergsma	
Course Coordinator	Ir. A.C. Bergsma	
Instructor	Prof.dr.ir. T. Klein	
Contact Hours / Week x/x/x/x	8 hours per week	
Education Period	3	
Start Education	3	
Exam Period	none	
Course Language	English	
Required for	Facade Design program, Master of Building Technology	
Summary	The course Facade Technology focuses on specific and changing topics relevant to the facade industry and architectural practice and consists of lectures from TU Delft and experts from practice and several excursions. This course is one of the Technoledge elective courses of the BT Master track. The course is also open as a free elective course for architecture students and students of CiTG.	
Course Contents	<p>The facade is one of the most technically challenging, complex and multidisciplinary parts of a building. The building envelope not only defines the appearance of the building and its architectural expression, but it also determines how the building technically functions in terms of comfort, energy performance, sustainability and safety. Besides these technical aspects, the envelope also plays an important role when it comes to investment costs and operating costs of a building. Because of the many aspects that have to be dealt with when designing and constructing a façade, the façade is one of the most complex and integrated parts of a building. Because so many disciplines are involved, from architecture to building physics, facade engineering, costs and construction, working in design teams and good cooperation is essential to create excellent, integrated façade concepts.</p> <p>Within this fascinating context the course focuses on specific and changing topics relevant to façade design, facade industry and architectural practice. The course consists of a strong theoretical part consisting of several lectures by experts in the field of façade technology and related studio work, as well as several excursions and an optional symposium and international facade design workshops.</p> <p>Design studio work: Under supervision of (external) experts from TU delft and/or industry, students have to work in groups (groupsize max. 3 persons) on several assignments and facade analyses that are related to several facade aspects and topics.</p> <p>Lectures: A major part of the course consists of several lectures organized by the Faculty of Architecture, the Faculty of CiTG and several partners from industry. These partners are the VMRG, the KCG, several façade manufacturers, product manufacturers and engineering offices.</p> <p>Excursions: Lectures and studio work are combined with excursions to construction site and product manufacturers. For these excursions students will have to pay a contribution of max. 30 euros pp.</p> <p>Focus points: The studio work, lectures and excursions are linked to the following general themes: - Architectural aspects with focus on façade design, architecture and future façade principles. - Structural and construction aspects with focus on façade detailing, design optimization, calculation and construction principles. - Performance in terms of sustainability, climate and comfort with focus on sustainable facade principles and concepts and integration of building physical and climate design aspects. - Manufacturing, logistics and assembly of facades with focus on process planning, logistics, transport issues, production, cost management, tolerances and assembly aspects of facades. - Design and engineering processes of facades with focus on design and engineering methods, working in design teams, tender issues, testing aspects, design and engineering tools. - Facade materials and facades commonly used in facade industry and new developments. - Safety aspects of facades and damage cases. - Quality aspects of facades and quality control. - Maintenance, operating and life-time aspects. - Detailing of facades with focus on, wind- and water tightness, thermal performance, sealing systems, tolerances and connections.</p> <p>Symposium and workshops (optional): The symposium and workshop are organized in cooperation with our partner universities in Europe (University of Bath, Detmold and Lucerne and others) and will also be attended by students from these universities. The symposium and workshops will be organized in the second quarter of each semester. Depending on the university that is organising both symposium and workshop the location will be in Delft or abroad. Additional to the symposium a multi-day workshop is planned to get some practical experience / insight in assembly, disassembly and construction aspects of facades.</p>	
Study Goals	<ul style="list-style-type: none"> - The student is able to list and describe presented theory and knowledge on quality control, engineering and production processes of façade manufacturing, wind- and water tightness of facades, structural aspects and use of glass in facades. - The student is able to analyze and explain different façade concepts, designs and details in terms of construction method, building physical and fire safety aspects, structural mechanisms, material behavior, climate aspects and quality. - The student is able to make façade designs and concepts that are coherent, integrated and feasible in terms of building physical, structural and constructional aspects. - The student is able to present his/her work using the appropriate drafting techniques. 	
Education Method	<p>Design studio work: approx. 100 hours Lectures: approximately 2 - 4 hours per week Excursions: 2 days Workshop: 2 - 3 days (optional, not obliged) Symposium: 1 day (optional, not obliged)</p>	
Literature and Study Materials	<ul style="list-style-type: none"> - hand outs lecture - literature according to course description - as part of the course several excursions will be planned. In order to finance transport by bus students have to pay a contribution of max. 30 euros pp. 	
Reader	- literature according to course description	
Assessment	- Several facade analysis and facade design assignments.	
Exam Hours	no written exam	
Special Information	Arie Bergsma	

	a.c.bergsma@tudelft.nl
Period of Education	1st quarter of semester
Leerstoel	Design of Construction, Building Technology
Maximum aantal deelnemers	50
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/

AR0125	Technoledge Climate Design	6
Responsible Instructor	Dr. R.M.J. Bokel	
Responsible Instructor	Prof.dr.ir. A.A.J.F. van den Dobbelsesteen	
Course Coordinator	Dr. R.M.J. Bokel	
Instructor	Dr. G.J. Hordijk	
Instructor	Dr.ir. P.J.W. van den Engel	
Instructor	Dr.ir. M.J. Tenpierik	
Instructor	Ing. S.R. Kurvers	
Instructor	Prof.dr.ir. P.M. Bluijssen	
Responsible for assignments	M.A. Ortiz Sanchez	
Contact Hours / Week x/x/x/x	6 hours per week	
Education Period	3	
Start Education	3	
Exam Period	none	
Course Language	English	
Required for	BT Master (two of the technoledge courses are obligatory to graduate in the BT-track)	
Course Contents	A building is in theory designed to have the best possible indoor comfort, in practice, however, this is not always realised. This course focuses on indoor comfort and the associated physiological concepts. You will learn the cutting edge theory on indoor comfort through lectures from the experts. You will practice with these theories through measurements in BK City of the indoor comfort aspects: visual quality, indoor air quality, acoustical quality and thermal quality. You will apply this knowledge in an existing building to assess the quality of the indoor comfort and relate the indoor comfort to the design of the building.	
Study Goals	The student is able to: - explain the current theories on indoor air quality, visual quality, thermal quality and acoustical quality - analyse relevant scientific literature on indoor comfort and write a consistent and coherent scientific report on this topic - assess the indoor comfort of an existing building based on his own systematically designed measurement plan	
Education Method	Lectures Measurements Literature study Discussions	
Literature and Study Materials	<p>Holistic perspective and Indoor air quality:</p> <ol style="list-style-type: none"> 1. Bluyssen, P.M. (2015) All you need to know about indoor air, A simple guide for educating yourself to improve your indoor environment, Delft Academic Press. 2. Bluyssen, P.M. (2009) The Indoor environment handbook - How to make buildings healthy and comfortable, Earthscan, Routledge, London. Chapters 1, 2, 3 3. Bluyssen, P.M. (2013), The Healthy Indoor Environment How to Assess Occupants Wellbeing in buildings, Earthscan, Routledge, London. Chapters 6, 8 <p>Acoustic comfort:</p> <ol style="list-style-type: none"> 1. Salter, Ch.M. (1998), Acoustics Architecture Engineering the Environment, William Stout Publishers, San Francisco. Chapters 4 and 6 2. Nijs, L. and Vries, D. de (2005), The Young Architects Guide to Room Acoustics, Acoustical Science and Technology 26 (2): 229-232. 3. Knowledge Base Building Physics, module A11- Speech intelligibility Thermal comfort: 1. Nicol, F., M. Humphreys and S. Roaf (2012), Adaptive thermal comfort Principles and practice, Routledge, New York. Chapters 1,2,3,4, 5 and 8 <p>Visual comfort:</p> <ol style="list-style-type: none"> 1. Baker, N., K. Steemers (2002), Daylight design of buildings A handbook for architects and engineers, Taylor & Francis Ltd, London. Chapter 10: Daylight, comfort and health 	
Assessment	Report and presentation	
Special Information	The maximum marking period is 15 work days.	
Period of Education	Quarter	
Leerstoel	Building Physics, Indoor Environment	
Maximum aantal deelnemers	24	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR0135	Technoledge Design Informatics	6
Responsible Instructor	Prof.dr.ir. I.S. Sariyildiz	
Course Coordinator	Dr. S. Asut	
Instructor	Dr. S. Asut	
Contact Hours / Week x/x/x/x	4 Hours * 8 Week + 32 Hours * 1 Week	
Education Period	3	
Start Education	3	
Exam Period	none	
Course Language	English	
Course Contents	The students develop design proposals for a given assignment by using parametric and generative design tools and methods. They develop parametric models in order to analyze and optimize the design solutions considering several performance criteria and the fabrication techniques. They form groups and collaborate with each other for fabricating the design in actual scale. They utilize computer aided fabrication tools and methods along with the most common craftsmanship for the fabrication of the design which they have developed.	
Study Goals	The student: -has acquired knowledge of parametric design strategies and digital fabrication techniques -has acquired skills to translate design constraints, variables and goals into a parametric model -is able to design - by using computer models - complex 3 dimensional architectural objects that are rationalized in support of the digital manufacturing process	
Education Method	This is an intensively hands-on course. The main method is learning by doing. The students also receive a few presentations on the main concepts and the intellectual background of the given task.	
Computer Use	use of laptop is mandatory	
Assessment	The performances of the students will be assessed by reviewing the 3 outputs: Preliminary design proposals which are developed in small teams, The final design and fabrication of the structure which are completed as a broad teamwork, The personal reports which present the reflections of each student on the process. As this is a hands-on course which requires intensive teamwork, the participation of each student in the teamwork tasks will also be monitored and assessed.	
Special Information	The maximum marking period is 10 work days.	
Remarks	This course includes a workshop abroad. The travelling costs need to be paid by each student.	
Period of Education	Quarter	
Leerstoel	Design Informatics	
Minimum aantal deelnemers	10	
Maximum aantal deelnemers	24	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR0851	1:1 Interactive Architecture Prototypes Workshop	6
Responsible Instructor	H.H. Bier	
Course Coordinator	H.H. Bier	
Instructor	S.S. Mostafavi	
Instructor	H.H. Bier	
Contact Hours / Week x/x/x/x	4 hours per week	
Education Period	3	
Start Education	3	
Exam Period	none	
Course Language	English	
Summary	Interactive Architecture is controlled and/or monitored by computer-based algorithms and it is integrated with the Internet of Things (IoT) and its users. It is operated by physical and software components that are deeply intertwined. Static and dynamic modalities of such architectural spaces involve customization and reconfiguration achieved by means of Design-to-Robotic-Production and Operation (D2RP&O).	
Course Contents	D2RP&O integrates advanced computational design with robotic techniques in order to produce performance-driven architectural formations. This implies that design is directly linked to building production and operation. Thus D2RP connects design to materialization by integrating all requirements (from functional and formal to structural) in the design of building components, while D2RO integrates robotic devices into building components in order to facilitate spatial and climatic reconfiguration. Together they establish the framework for robotic production and operation at building scale. The main consideration is that in architecture and building construction the factory of the future will employ building materials and components that can be robotically processed and assembled. Thus D2RP&O processes incorporate material properties in design, control all aspects of the processes numerically, and utilize parametric design principles that can be linked to the robotic production.	
Study Goals	<p>D2RP&O for Interactive Architecture is taught in a workshop set-up wherein:</p> <ol style="list-style-type: none"> (1) Students develops skills in architectural design as D2RP&O satisfying both aesthetic and technical / functional requirements. (2) During this trajectory skills are acquired to increasingly incorporate an understanding of the D2RP&O process attained with regard to architectural history and theory, art, technology and social sciences. (3) Additionally, skills are acquired to incorporate an understanding of the D2RP&O process attained with regard to the relation between buildings, spaces and societal challenges such as resources depletion, environmental damage, overpopulation, etc. (4) During the D2RP&O process skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and design. (5) Skills are acquired during the D2RP&O process to incorporate an understanding of the design process with regard to structural design, materialization of buildings, comfort and climate control. 	
Education Method	Design research and practice are implemented in a workshop set-up by employing computationally advanced design and robotic manufacturing techniques.	
Literature and Study Materials	<p>Bier, H. Robotic Building, TEDx Delft 2015, TEDx Delft Salon, The Future, (https://www.tedxelft.nl/2015/04/tedxelft-events-tedxelft-salon-the-future/)</p> <p>Bier, H. and Knight, T., Digitally--driven Architecture, Footprint Issue 6, Stichting Footprint, 2010 (https://www.researchgate.net/publication/44444960_Digitally-Driven_Architecture)</p> <p>Bier, H. and Knight, T., Data Driven Design to Production and Operation, Footprint Issue 10, Stichting Footprint, 2014 (https://www.researchgate.net/publication/281404980_Data-driven_design_to_production_and_operation?ev=prf_pub)</p> <p>Bier, H., Robotic Building(s), Next Generation Building 1, Baltzer Science, 2014 (https://www.researchgate.net/publication/281406148_Robotic_buildings)</p> <p>Bier, H., Robotic Building (http://www.roboticbuilding.eu/education/msc3-4/)</p> <p>Bier, H. and Mostafavi, S. Structural Optimization for Materially Informed Design to Robotic Production Processes, AJEAS, 2015 (https://www.researchgate.net/publication/286477508_Structural_Optimization_for_Materially_Informed_Design_to_Robotic_Production_Processes)</p> <p>Liu Cheng, A. and Bier, H., An Extended Ambient Intelligence Implementation for Enhanced Human-Space Interaction, ISARC, 2016 (https://www.researchgate.net/publication/305999106_An_Extended_Ambient_Intelligence_Implementation_for_Enhanced_Human-Space_Interaction)</p> <p>Mostafavi, S. and Bier, H., Materially Informed Design to Robotic Production: A Robotic 3D Printing System for Informed Material Deposition, RobArch, 2016 (Materially Informed Design to Robotic Production: A Robotic 3D Printing System for Informed Material Deposition)</p>	
Assessment	Design process and final results are evaluated on the basis of the applied and interpretive level of comprehension demonstrated through scaled and 1:1 virtual and physical 2-4D prototypes, written reports, and oral presentations.	
Period of Education	Quarter	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

Compulsory Choice

AR0026	MEGA	12
Responsible Instructor	Dr. M. Turrin	
Responsible Instructor	Prof.ir. R. Nijssse	
Course Coordinator	Dr. M. Turrin	
Contact Hours / Week	93 hours per quarter	
x/x/x/x		
Education Period	4	
Start Education	4	
Exam Period	none	
Course Language	English	
Expected prior knowledge	Each student is expected to have knowledge about the disciplines to perform in the course. The level of the knowledge should be at least BSc.	
Summary	MEGA is a collaborative integral multi-disciplinary design of a special big and/or tall building. This could be a multifunctional skyscraper or a multifunctional building with a large span, such as a stadium, a sports facility, a museum, an airport, train station or transport hub.	
	The course targets master students in Architecture, Real Estate & Housing, Building Technology and Civil Engineering; and it is open to non-TU Delft students, conforming with TU Delft regulations. It can be chosen by Building Technology students in MSc2 (choice between EXTREME AR2AE010 and MEGA AR0026).	
	Students work in teams. The design team of 4 to 7 students is responsible for delivering an integrated design as a multidisciplinary team; while each student is responsible for one discipline.	
	Disciplines involved are: architecture, structural design, climate design, façade design, design/construction management and computational design/BIM. Sustainability runs transversally across these disciplines.	
	The design process occurs in a collaborative digital design environment, supporting the workflow across the different disciplines. The collaborative digital design requires an integrated 3D approach with BIM (Building Information Modelling), performance analysis, and file to production processes.	
	The workshop is very realistic and closely matches the design process of large international projects in the competition phase; it is a very good preparation and experience builder for your future career. It is highly appreciated by future employers.	
	The course is supported by external international design/engineering offices. With them, the location of the project will be chosen and the brief of the design assignment will be developed. As examples from recent years, support was given by Arup and UNStudio, by ABT and Neutelings Riedijk Architecten. Examples of past collaborations include also Municipalities and Provinces, such as the City of Rotterdam, Almere and Den Haag, and the Province of Friesland.	
Course Contents	Disciplines:	
	The team is organized on disciplines: -Architectural Design -Structural Design -Climate Design and building services -Façade Design -Project and construction management -Computational Design	
	The disciplines are divided amongst the team members; each member is responsible for the contribution and integration of these aspects in the collective design. Students are encouraged to match their role in the team with the specialization they follow in the Master track.	
	Phases:	
	The course is structured in 3 phases: -Lectures; excursion; intensive learning -Sketch design of 2-3 options; presentation of options; choice of one option -Preliminary design of the chosen option; final presentation	
	The first phase includes lectures by professors, external experts and architectural/engineering firms. During the excursion, the project site is visited. Intensive sessions allow studying and practicing group dynamics, collaborative work, computational design.	
	The second phase focuses on the design of multiple options. The daily design activities are facilitated by tutors who are expert in the disciplines. Each discipline has a weekly time for individual consults. During a presentation, one design option is chosen for further development.	
	The mid-term presentation is facilitated by external experts. Feedback by them and tutors inform the design and decision-making. Following, the external experts give a (public) lecture.	
	After the mid-term presentation, the design option is detailed with the team, leading to the end presentation. The end presentation is an important event with external experts assessing the designs. The design is summarised in reports about each discipline.	
	Site:	
	The assignment has an actual site where the building is planned. Past examples are in Amsterdam, Rotterdam, London, Brussels, Guangzhou.	
	Objectives:	
	Collaborative design -Working together with different disciplines (different goals and backgrounds) -Realistic design environment	
	Sustainable design -Definition of sustainability for project -Contribution of all disciplines to holistic sustainable design -Development of low/zero/plus energy design	
	Computational Design -Collaborative digital workflow across disciplines / BIM	

- Parametric design strategies/methods
- Performance analysis with simulation tools
- Feedback loops between numeric assessments and geometric modelling
- Digital interaction between design, engineering, analysis, manufacturing and construction

Architectural Design

- Interaction architecture/masterplan/environmental context
- Development of architectural design concepts
- Integration of structural, façade, climate concepts into architectural design
- Integration of sustainability and construction into architectural design
- Development of preliminary design

Structural Design

- Development of structural concepts
- Development of concept design
- Evaluation of different structural systems in relation to architectural design
- Integration with architecture, façade, climate design
- Dimensioning of structural elements
- Development of preliminary design

Climate design

- Developments of climate and building services concept
- Development of conceptual design
- Evaluation of different climate and building services systems in relation to architectural design
- Integration with architecture, structure, façade
- Dimensioning of HVAC installations
- Development of preliminary design

Façade design

- Development of façade concepts
- Developments of conceptual design
- Evaluation of different façade systems in relation to architectural and climate design
- Integration with architecture, structure, building services

Project and construction management

- Control of objectives, tasks, deliverables
- Facilitation of the group process
- Prediction of income and building costs; optimisation
- Development of site management and logistics
- Development of construction methods/planning

Study Goals

The student is able to design a coherent, significant, elaborated, correct and innovative design - on mainline and on aspects on MSC 2 level.

Specified for this course:

After successful completion of the course, the student will be able to:

- work in an interdisciplinary design process;
- understand and apply discipline-related knowledge in projects for big or tall buildings.
- develop design strategies to achieve high building performances;
- integrate numeric analysis and simulations to address design choices.

Education Method

In this course, the education methods are:

- Lectures by professors and specialists
- Collaborative working sessions with other students
- Exposure to external architectural practice and external experts
- Consults with tutors
- Making presentation and receiving/integrating feedback

Special is the involvement of external practitioners and external experts linking this course to practice.

For this course several multidisciplinary teams of students are formed, which are each responsible for one integral design. Each student has a different role in the design team and is tutored by instructors specialized in her/his discipline. When possible, students take roles according to their specialization during the Master studies.

Apart from focussing on his/her own discipline, the aim for each team-member is to achieve the best integral design paying special attention to collaborative design, sustainable design and computational design.

Feedback is received during the mid-term and final presentation from the external experts and tutors.

Literature and Study Materials

More specific literature is provided at the start of the course. The literature below provides an indication on relevant general content.

Tall Buildings

Kloft, E., Eisele, J., (Ed), (2003) High-Rise Manual, Hardcover
Ng, E. (Ed.). (2010) Designing high-density cities for social and environmental sustainability. London, Earthscan.
Ali MM, Moon K. (2007) Structural developments in tall buildings: currents trends and future prospects. Architectural Science Review 50(3): 205223.
Baker WF, Korista DS, Novak LC. (2008) Engineering the worlds tallest Burj Dubai., In The CTBUH 8th World Congress Tall & Green: Typology for a Sustainable Urban Future, Dubai; 110.
Brown, N. C., & Mueller, C. T. (2016) Design for structural and energy performance of long span buildings using geometric multi-objective optimization. Energy and Buildings, 127, 748-761. Cross,P., Vesey,D., Chan, C.M., (2007) High-Rise Buildings. In Melchers, R.E., Hough, R., (Ed), Modeling complex engineering structures, ASCE.
Stylianios, D., Charitou, R., Hesselgren, L., (2006) Computational Methods on Tall Buildings - The Bishopsgate Tower, Communicating Space(s) In proceedings of eCAADe 2006, 778-785.
Almusharaf, Ayman M.; Mahjoub Elnimeiri (2010) A Performance-Based Design Approach for Early Tall Building Form Development , CAAD - Cities Sustainability, Proceedings of ASCAAD 2010, 39-50.
Kimpian, J., Mason, J., Coenders, J., Jestico, D., Watts, S., (2009) Sustainably Tall: Investment, Energy, Life Cycle., In proceedings of ACADIA 2009: reForm() - Building a Better Tomorrow, 130-143.
The Structural Design of Tall and Special Buildings, International Journal, John Wiley & Sons, Ltd
Moon K, (2008) Sustainable structural engineering strategies for tall buildings. In: The Structural Design of Tall and Special Buildings, Special Issue: CTBUH 2nd Annual Special Edition: Tall Sustainability 17(5): 895914.
Taranath, BS, (2011) Structural Analysis and Design of Tall Buildings: Steel and Composite Construction. Taylor & Francis.
Taranath, BS, (1988) Structural Analysis and Design of Tall Buildings. McGraw-Hill, New York.
Schueller, W., (1986) High-Rise Building Structures (2nd edn.) Robert E. Krieger Publication Company, USA.

Big buildings

Barnes, M., Dickson, M., (Ed.), Widespan Roof Structures, Thomas Telford, London, 2000

	<p>Hough, R., Carfrae, T., <i>Lightweight Long-Span Roofs</i>. In Melchers, R.E., Hough, R., (Ed), <i>Modeling complex engineering structures</i>, ASCE Publications, 2007</p> <p>Imbert F., KathrynStutts Frost, Al Fisher, Andrew Witt, Vincent Tourre, and Benjamin Koren, (2012), <i>Concurrent geometric, structural and environmental design: Louvre abu dhabi</i>. In <i>Advances in Architectural Geometry</i>, 7790.</p> <p>Kawaguchi, M., (1991) <i>Design problems of long span spatial structures</i>. <i>Eng. Struct.</i> 13, 144163.</p> <p>Majowiecki, M., (2005) <i>Structural architecture for large roofs: concepts and realizations</i>. <i>Bautechnik</i>, 82(3): 147156.</p> <p>Majowiecki, M. (1990) <i>Observations on theoretical and experimental investigations on lightweight wide span coverings</i>, International Association for Wind Engineering, ANIV.</p> <p>Hladik, Pavel; Clive J Lewis (2010) <i>Singapore National Stadium Roof</i>, <i>International Journal of Architectural Computing</i> 8(3): 257-278</p> <p>Shepherd, P., & Hudson, R. (2007) <i>Parametric definition of Landowne road stadium</i>. in: <i>International association of shell and spatial structures</i>, Venice, Italy, 2007,CD-ROM.</p> <p>Hudson, R. (2008) <i>Frameworks for practical parametric design in architecture</i>. In: Pottman, H., Hofer, M. & Kilian,A. (eds), <i>Advances in architectural geometry</i>. Vienna, Austria,17-20.</p> <p>Sanchez-Alvarez J, (2005) <i>Materializing geometry: the free-form reticulated roof structures for the new Milan Fair</i>. In: <i>Proceedings of AEC2005 Symposium</i>, Rotterdam, NL.</p>
Assessment	<p>Presentations and Reports</p> <p>Assessment is twofold: - Group assessment for integral group design based on presentations - Individual assessment for discipline report</p> <p>The students mark is a combination of the group assessment and individual assessment.</p>
Special Information	The maximum marking period is 15 work days.
Remarks	The course is in English - spoken and written.
Period of Education	Quarter

AR0072	Solar Decathlon	12
Responsible Instructor	Prof.dr.ir. A.A.J.F. van den Dobbelsteen	
Course Coordinator	Ir. P.G. Teeuw	
Contact Hours / Week x/x/x/x	8 hours per week	
Exam Period	none	
Course Language	English	
Course Contents	<p>The Solar Decathlon is a bi-annual competition of solar homes built by universities across the world. TU Delft is also participating in this competition.</p> <p>This course is connected to active involvement of students participating in the TU Delft Solar Decathlon team. This course deals with the architectural and technical design and elaboration of the TU Delft entry to the Solar Decathlon competition.</p>	
Study Goals	<p>The student is able to design a coherent, significant, elaborated, correct and innovative design - on mainline and on aspects on MSC 2 level.</p> <p>Specified for this course; the student is able to: - collaborate in a team with other students - work on a joint design of an energy-neutral or energy-producing house - integrate various aspects of sustainability into the design of the house - elaborate on components of the design challenge, related to architectural design, structural design en engineering, envelope design and engineering, climate design and engineering, HVAC systems, electrical systems etc.</p>	
Education Method	Tutorials, workshops, (mid-term) presentations, reporting, exhibiting	
Assessment	The design, report and oral presentations will be assessed by different criteria. Also the group attitude and pro-activity of the student will be reviewed.	
Period of Education	Semester	

AR0096	EXTREME technology	12
Responsible Instructor	Prof.dr.ing. U. Knaack	
Course Coordinator	Ir. R. Schroën	
Contact Hours / Week x/x/x/x	12 hours per week	
Education Period	4	
Start Education	4	
Exam Period	none	
Course Language	English	
Course Contents	<p>The project is about building in a extreme situation, in respect to climate, location and function. Essence is the interaction between the extreme circumstances, the technical solutions, and the architecture. Extreme circumstances do request technical solutions which will be the starting point for the design development. The designer has to direct the 'engineer questions and answers', towards the articulation of the form which is based on integration of aesthetic and technology.</p> <p>"Die Architectur des 21 Jahrhunderts hat ihre Unschuld verloren, Gebaude müssen etwas leisten" Stefan Behnisch.</p> <p>In the end the student is able to understand technical solutions, to reflect on them, to applicate them and to transform them. And the student is able to design a coherent design result.</p>	
Study Goals	<p>The student is able to design a coherent, significant, elaborated, correct and innovative design - on mainline and on aspects on MSC 2 level.</p> <p>Specified for this course: In the end the student is able to design a healthy coherent building in extreme conditions with a focus on technical solutions: the student is able to apply, reflect and transform principles concerning climate, construction and structure.</p>	
Education Method	Design project	
Assessment	The design result including the aspects structure, climate and envelope.	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR0098	Sustainability project design and elaboration	12
Responsible Instructor	Prof.ir. M.F. Asselbergs	
Responsible Instructor	Prof.dr.ir. A.A.J.F. van den Dobbelssteen	
Course Coordinator	Ir. P.G. Teeuw	
Course Language	English	
Course Contents	This course is connected to active involvement of students participating in design teams related to practice. This course deals with the architectural and technical design and elaboration.	
Study Goals	<p>The student is able to</p> <ul style="list-style-type: none"> - collaborate in a team with other students - work on a joint design of a specific (building) design project - integrate various aspects of sustainability into the design of the project - elaborate on components of the design challenge, related to architectural design, structural design en engineering, envelope design and engineering, climate design and engineering, etc. 	
Education Method	Tutorials, workshops, (mid-term) presentations, reporting, exhibiting (if applicable)	
Assessment	Portfolio of the design, report and oral presentations will be assessed by different criteria. Also the group attitude and pro-activity of the student will be reviewed. All depending on the specific project .	
Period of Education	Varies.	

AR0850	1:1 Interactive Architecture Prototypes	12
Responsible Instructor	H.H. Bier	
Course Coordinator	H.H. Bier	
Instructor	V. Laszlo	
Instructor	H.H. Bier	
Contact Hours / Week x/x/x/x	0/0/X/X	
Education Period	4	
Start Education	4	
Exam Period	none	
Course Language	English	
Summary	Interactive Architecture involves physically built environments that are robotically produced and operated. Such physically built robotic environments consist of reconfigurable, adaptive systems incorporating sensor-actuator mechanisms that enable buildings to interact with their users and surroundings in real-time. Robotically supported building processes link performance-driven design with robotic production and user-driven building operation. They involve virtual modeling and simulation that interface the production and real-time operation of physically built space, thus establishing an unprecedented Design-to-Robotic-Production and Operation (D2RP&O) feedback loop.	
Course Contents	This course focuses on employing D2RP&O methods for the design and fabrication of 1:1 architectural prototypes. Students learn in a studio set-up to conceptualize, design and fabricate buildings i.e. building components by applying parametric design, robotic fabrication and interactive operation methods. In this context, parametric design is understood as a systemic approach for the design, construction and operation of buildings.	
Study Goals	D2RP&O for Interactive Architecture is taught in a studio set-up wherein: (1) Students develops skills in architectural design as D2RP&O satisfying both aesthetic and technical / functional requirements. (2) During this trajectory skills are acquired to increasingly incorporate an understanding of the D2RP&O process attained with regard to architectural history and theory, art, technology and social sciences. (3) Additionally, skills are acquired to incorporate an understanding of the D2RP&O process attained with regard to the relation between buildings, spaces and societal challenges such as resources depletion, environmental damage, overpopulation, etc. (4) During the D2RP&O process skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and design. (5) Skills are acquired during the D2RP&O process to incorporate an understanding of the design process with regard to structural design, materialization of buildings, comfort and climate control.	
Education Method	Design research and practice are implemented in a studio set-up by employing computationally advanced design, robotic manufacturing, and interactive operation techniques.	
Literature and Study Materials	Bier, H. Robotic Building, TEDx Delft 2015, TEDx Delft Salon, The Future, (https://www.tedxelft.nl/2015/04/tedxelft-events-tedxelft-salon-the-future/) Bier, H. and Knight, T., Digitally--driven Architecture, Footprint Issue 6, Stichting Footprint, 2010 (https://www.researchgate.net/publication/44444960_Digitally-Driven_Architecture) Bier, H. and Knight, T., Data Driven Design to Production and Operation, Footprint Issue 10, Stichting Footprint, 2014 (https://www.researchgate.net/publication/281404980_Data-driven_design_to_production_and_operation?ev=prf_pub) Bier, H., Robotic Building(s), Next Generation Building 1, Baltzer Science, 2014 (https://www.researchgate.net/publication/281406148_Robotic_buildings) Bier, H., Robotic Building (http://www.roboticbuilding.eu/education/msc3-4/) Bier, H. and Mostafavi, S. Structural Optimization for Materially Informed Design to Robotic Production Processes, AJEAS, 2015 (https://www.researchgate.net/publication/286477508_Structural_Optimization_for_Materially_Informed_Design_to_Robotic_Production_Processes) Liu Cheng, A. and Bier, H., An Extended Ambient Intelligence Implementation for Enhanced Human-Space Interaction, ISARC, 2016 (https://www.researchgate.net/publication/305999106_An_Extended_Ambient_Intelligence_Implementation_for_Enhanced_Human-Space_Interaction) Mostafavi, S. and Bier, H., Materially Informed Design to Robotic Production: A Robotic 3D Printing System for Informed Material Deposition, RobArch, 2016 (Materially Informed Design to Robotic Production: A Robotic 3D Printing System for Informed Material Deposition)	
Assessment	Design process and final results are evaluated by means of scaled and 1:1 virtual and physical 2-4D prototypes, written reports, and oral presentations.	
Special Information	This course is offered in connection with AR0851.	
Period of Education	Quarter	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

Free Electives (6 EC)

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

MSc 3 Building Technology

AR3B025	Sustainable Design Graduation Preparation	15
Responsible Instructor	Prof.dr.ing. U. Knaack	
Responsible Instructor	Prof.ir. R. Nijse	
Responsible Instructor	Ir. P.G. Teeuw	
Responsible Instructor	Prof.dr.ir. T. Klein	
Responsible Instructor	Prof.dr.ir. A.A.J.F. van den Dobbelen	
Responsible Instructor	Prof.dr.ir. I.S. Sariyildiz	
Course Coordinator	Ir. P.G. Teeuw	
Contact Hours / Week x/x/x/x	1 hour per week	
Education Period	2 4	
Start Education	2 4	
Exam Period	none	
Course Language	English	
Required for	All BT students	
Expected prior knowledge	Bucky Lab, Innovation & Sustainability, Technoledge, EXTREME or MEGA, EARTHY or SWAT Studio.	
Course Contents	<p>The Sustainable Design Graduation Studio continues the build-up of Bucky Lab, Innovation & Sustainability, Technoledge, EXTREME or MEGA (or approved equivalent), and EARTHY or SWAT Studio to your own graduation project in the Building Technology master track. In the Sustainable Design graduation studio students work on their individual graduation project comprising a preparative technical-scientific study (until the P2, this first part) and design, design by research or research by design (after the P2, the second part of the graduation studio).</p> <p>The studio intends to be in strong coherence with themes from the research programme Design Engineering, so students can benefit from and contribute to the research activities by staff of the AE+T department. While the graduation project's subject can relate to any of the disciplines represented by the Building Technology master track, emphasis lies on sustainability-related topics of structural design, façade design, climate design and design informatics. These may be interlinked. The student will be assigned to two supervisors from different 'colours' of AE+T (Structural Design / Façade Design / Climate Design / Design Informatics / others), possibly with a third supervisor if that's desired thematically. The student projects content as well as design and research is reflected by these supervisors.</p>	
Study Goals	<p>The student:</p> <ul style="list-style-type: none"> - is capable of delivering innovative contributions toward the development of sustainable structural, façade and climate design, and to technical-scientific research in these areas; - has insight in the profession and competences of structural, façade or climate designers and their societal and professional role in sustainable development of the built environment; - is able to present process and result in a clear and systematic way, reflect on process and work, and argument in a scientific way. 	
Education Method	Supervised self study, with possibly intermediate studio workshops	
Computer Use	Personal laptops only	
Course Relations	See required prior knowledge	
Prerequisites	See required prior knowledge	
Assessment	P1 First ideas of the graduation project, conceptual research framework, first literature study results P2 Definite research framework, literature and desktop research results, outline for the design research	
Special Information	See the Master Graduation Manual for more details.	
Special Information	The maximum marking period is 10 work days. On set conditions, Building Technology students have the possibility to carry out their graduation research project at a company. Students who wish to do so are required to sign a standard internship agreement in advance, including a research proposal which has been approved by the main mentor. Additional conditions and requirements are stipulated in the internship agreement (master) which can be found at http://studenten.tudelft.nl/en/students/faculty-specific/architecture/forms/ . The agreements can be signed at the secretariat of Education and Student Affairs.	
Period of Education	Quarter	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

Compulsory Choice (choose 1 project)

AR3B011	EARTHY	15
Responsible Instructor	Prof.dr.ir. I.S. Sariyildiz	
Course Coordinator	Dr.ir. P. Nourian	
Instructor	Dr.ir. F.A. Veer	
Instructor	Ir. D.R. Visser	
Instructor	Dr. S. Asut	
Education Period	1	
Start Education	1	
Exam Period	none	
Course Language	English	
Expected prior knowledge	A basic knowledge of Computer Aided Design and Finite Element Analysis is expected.	
	Building Technology students are expected to have passed MSc1 Bucky Lab and MSc2 EXTREME or MEGA (or approved equivalent) before enrolling for EARTHY. Building Technology students are advised to have completed two elective courses (2 x 6 ECTS) of Technoledge (Structural Design, Façade Design, Climate Design or Computational Design) in the first quarter of the MSc2.	
Parts	The Earthy Studio is focused on devising computational methods, techniques and tools for analysis, synthesis, form-generation and optimization in designing earth buildings, specifically in:	
	1. Configuring: arrangement of a settlement for a displaced community considering accessibility of amenities, and functional layout of communal/public buildings;	
	2. Forming: devising the 3D shape of the buildings based on their functional configuration, climatic functionality, and structural performance;	
	3. Structuring: construction design of an earth building for a zero-waste circular construction process.	
Course Contents	In this course, students learn computational methods for spatial configuration, design, and construction of a settlement for displaced communities (e.g. refugees, victims of natural disasters), focusing on high-tech design for low-tech construction with earth materials, relying on local labour, low-energy content, passive climatic design strategies, and maximum circularity of the materials. Exploiting the relations between natural material properties, geometry of shape and structural performance will be central to this course.	
	The objectives of the course are twofold:	
	to learn to utilize complex geometry and complex topology in designing form-effective and functional buildings and settlements by means of (visual) programming	
	to learn the physical relation between structural functionality of forms and structural properties of materials	
	Students will learn the fundamentals of computational form-finding for geometrically and topologically complex configurations and structures. The educational challenges are about:	
	1. Configuring:	
	Formulating a functional program of requirements for the displaced community settlement;	
	Designing a settlement by means of computational configuration methods;	
	2. Forming:	
	Researching nature inspired computational geometry;	
	Designing nature-inspired configurations, forms, and structures;	
	Designing a community building (such as school, crafts workshops, community centres)	
	3. Structuring:	
	Designing a zero-waste, circular construction sequence for using the local materials and low-tech construction techniques;	
	Making proof-of-concept physical models of the design	
	All subjects are covered both in lectures, a series of workshops for computational design and programming, and design studios. The aim of the course is not only to design a building in a settlement but to design, document, and disseminate the design workflow as an open-source project.	
Study Goals	The student is able:	
	- to analyse urban context and local characteristics (including, socio-cultural and ethical aspects) of a design assignment and develop a personal position into this.	
	- to computationally design, develop algorithms and underpin the architectural configuration of a settlement suitable for mass-customization in a circular construction process with low-cost materials, local labor, and low-tech construction techniques.	
	- to optimize complex geometric forms for a desired structural performance, given a local material and functional requirements.	
Education Method	Lectures (theory): 24 hours=8 weeks, 3 hours/week;	
	Workshops (practice): 24 hours=8 weeks, 3 hours/week;	
	Design Studio Consultations: 64 hours=8 weeks, 8 hours/week;	
	Assessments: 28 hours	
	Self-study: 280 hours=10 weeks of 28 hours per week	
Assessment	The assessment is based on the quality of the deliverables (products, processes, and documentations) for the modules of the course.	
Period of Education	Quarter (10 Weeks)	

AR3B015	SWAT Studio	15
Responsible Instructor	Dr. C.L. Martin	
Responsible Instructor	Ir. P.G. Teeuw	
Responsible Instructor	Prof.dr.ir. A.A.J.F. van den Dobbelsesteen	
Course Coordinator	Dr. C.L. Martin	
Instructor	Prof.dr.ir. T. Klein	
Instructor	Ir. E.R. van den Ham	
Instructor	F. Oikonomopoulou	
Contact Hours / Week x/x/x/x	16 hours per week	
Education Period	1 3	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Required for	BT master students. Only BT master students will be admitted to the SWAT Studio.	
Expected prior knowledge	The successful completion of MSc1 Bucky Lab, MSc1 Innovation & Sustainability and MSc2 EXTREME or MEGA (or approved equivalent) is required before entry onto the SWAT Studio can be approved. In addition, Building Technology students are strongly advised to have completed two elective courses (2 x 6 ECTS) of Technoledge (Structural Design, Façade Design, Climate Design or Computational Design) in the first quarter of the MSc2.	
Parts	The SWAT Studio consists of three elements. 1. Briefing - Preliminary urban site investigations, socio-technical readings, energy potential mapping and group presentations. 2. Intervention - Intensive onsite workshop in which student groups develop an urban-scaled sustainable proposal in response to the societal urban challenges. 3. Elaboration - One element of the Intervention proposal is individually selected and technically advanced and detailed.	
Course Contents	After having focused on technology in the Bucky Lab and on integrated design in EXTREME / MEGA, students now deal with technical interventions in an existing urban context, whilst working in teams and collaborating with local authorities, experts and other stakeholders.	
Study Goals	The student: - has appropriate insight into latest developments in the market of structural design, façade design and climate design, in particular in regards to sustainability - is able to analyse the urban context and local characteristics (climatic, historic, socio-cultural, ethical and technical) of a design intervention assignment and describe them in a report format through text, diagrams, maps and images - is able to develop a personal position in relation to future urban conditions, urban form and sustainability - is able to translate local circumstances into appropriate design interventions in existing urban blocks, buildings, envelopes or structures - is able to collaborate effectively in multi-disciplinary groups of students and experts in order to communicate group work to an audience of peers and local stakeholders - is able to technically elaborate a conceptual design in the direction of structures, facades or climate concept, and to coherently communicate this via detailed drawings, text and schemes	
Education Method	Educational Method The SWAT Studio consists of lectures (Briefings), an onsite design workshop (Intervention) and individual technical work (Elaboration) under supervision of staff experts. In preparation for the workshop students research/analyze the local circumstances of the assignment site. The onsite workshop (Intervention) can be based abroad, as a consequence students are expected to financially contribute to this excursion. In the acquisition of self-funding a level of pro-activeness is required (amounting to around 500 euro maximum).	
Computer Use	Personal laptops only	
Course Relations	The SWAT Studio forms an integrated part of the Building Technology master track and is aligned with previously completed consecutive courses (MSc1 Bucky Lab, MSc1 Innovation & Sustainability, MSc2 Technoledge and MSc2 EXTREME/MEGA) and with the MSc3/4 Graduation Studio of Sustainable Design that immediately follows.	
Literature and Study Materials	- Broersma S., Fremouw M. & Dobbelsesteen A.; 'Energy Potential Mapping - Visualising Energy Characteristics for the Exergetic Optimisation of the Built Environment', in: Entropy No. 15, Vol. 2, 2013 (490-510) - Girardet H., 2009. Cities as Superorganisms. In: Schumacher Briefing 2 - Creating Sustainable Cities. 6th ed. Padstow, Cornwall, UK: TJ International. Ch. 3. pp.23-26. - Girardet, H., 2004. Cities as Eco-Technical Systems. In: Cities People Planet: Liveable Cities for a Sustainable World. John Wiley & Sons. Ch. 6, pp.108-130. - Herzog, T., R. Krippner, et al. (2004); Facade construction manual. Basel, Birkhäuser. - Holgate, Alan (1997); The art of Structural Engineering, the work of Jörg Schlaich and his team. - Knaack, U., T. Klein, et al. (2007); Facades principles of construction Basel, Birkhäuser. - Kristinsson J. & Dobbelsesteen A. van den (ed.); Integrated Sustainable Design; Delftdigitalpress, 2012 - McDonough, W and Braungart, M., 2009. Waste Equals Food. In: Cradle to Cradle: Re-Making the Way we Make Things. 2nd ed. London: Vintage Books. Ch. 4. - Scheer, H., 2009. Renewable Energy is the Future. In: Girardet, Herbert, ed. Surviving the Century., 2009. London: Earthscan. pp.37-55. - Schumacher, E.F., 1974. The Problem Of Production. In: A. Dobson, ed. The Green Reader., 1998. 3rd ed. London: Andre Deutsch. pp. 29-33. - Steel, C., 2009. Supplying the City. In: Hungry City: How Food Shapes Our Lives. London: Vintage Books. Ch. 2. - Stremke S. & Dobbelsesteen A. van den (eds.); Sustainable Energy Landscapes; CRC Press, 2012 (available digitally) - Watts, A. (2011); Modern Construction Envelopes. Wien, Springer. - Local information from the site of the assignment.	
Prerequisites	MSc1 Bucky Lab, MSc1 Innovation & Sustainability and MSc2 EXTREME or MEGA (or approved equivalent) are all required before acceptance onto the SWAT Studio can be approved. For students who completed their MSc1 and MSc2 before 2013-2014 the transitional measures are applicable.	
Assessment	In regards to the learning goals, site data is to be group collated, then individually elaborated to form a design argument, a process that facilitates the personal differentiation of grades. Grades will be based on the following: 1. Quality and extent of the local analysis (in a preparative presentation with text, maps and images). 2. Quality of the design proposal (in schemes and drawings).	

3. Quality and coherence of the presentation (in communication,, drawings and models).

4. The technical elaboration will be assessed by a grade based on the quality of the report submitted, expressed by references, text, schemes, detail drawings and contextual appropriateness.

Enrolment / Application	Each semester
Special Information	The maximum marking period is 15 work days.
Period of Education	The course lasts for one full quarter (9 weeks). The combination of SWAT Studio work with other course material is strongly discouraged.
Leerstoel	Climate Design & Sustainability (coordinating), Design of Constructions, Building Product Innovation, with the contributions of Structural Design and Design Informatics.
Minimum aantal deelnemers	No (However, in cases where it is deemed that insufficient student numbers are available an alternative programme may be used).
Maximum aantal deelnemers	40 (first semester); no (second semester).
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

MSc 4 Building Technology

AR4B025	Sustainable Design Graduation Studio	30
Responsible Instructor	Prof.dr.ing. U. Knaack	
Responsible Instructor	Prof.ir. R. Nijssse	
Responsible Instructor	Ir. P.G. Teeuw	
Responsible Instructor	Prof.dr.ir. T. Klein	
Responsible Instructor	Prof.dr.ir. A.A.J.F. van den Dobbelsteen	
Responsible Instructor	Prof.dr.ir. I.S. Sariyildiz	
Course Coordinator	Ir. P.G. Teeuw	
Contact Hours / Week x/x/x/x	1 hour per week	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Required for	All BT students	
Expected prior knowledge	AR3B025	
Course Contents	<p>The Sustainable Design Graduation Studio continues the build-up of Bucky Lab, Innovation & Sustainability, Technoledge, EXTREME or MEGA, and EARTHY or SWAT Studio to your own graduation project in the Building Technology master track. In the Sustainable Design graduation studio students work on their individual graduation project comprising a preparative technical-scientific study (until the P2, this first part) and design, design by research or research by design (after the P2, the second part of the graduation studio).</p> <p>The studio intends to be in strong coherence with themes from the research programme Design Engineering, so students can benefit from and contribute to the research activities by staff of the AE+T department. While the graduation project's subject can relate to any of the disciplines represented by the Building Technology master track, emphasis lies on sustainability-related topics of structural design, façade design, climate design and design informatics. These may be interlinked. The student will be assigned to two supervisors from different 'colours' of AE+T (Structural Design / Façade Design / Climate Design / Design Informatics / others), possibly with a third supervisor if that's desired thematically. The student projects content as well as design and research is reflected by these supervisors.</p>	
Study Goals	<p>The student:</p> <ul style="list-style-type: none"> - is capable of delivering innovative contributions toward the development of sustainable structural, façade and climate design, and to technical-scientific research in these areas; - has insight in the profession and competences of structural, façade or climate designers and their societal and professional role in sustainable development of the built environment; - is able to present process and result in a clear and systematic way, reflect on process and work, and argument in a scientific way. 	
Education Method	Supervised self study	
Computer Use	Personal laptops only	
Course Relations	See required prior knowledge	
Prerequisites	See required prior knowledge	
Assessment	<p>P3 First design, design by research or research by design results, conceptual thesis report, plan for the remaining graduation timespan, draft reflection</p> <p>P4 Final design, design by research or research by design results, draft final thesis report</p> <p>P5 Final presentation of the design, design by research or research by design, final thesis report</p>	
Special Information	<p>The maximum marking period is 10 work days.</p> <p>On set conditions, Building Technology students have the possibility to carry out their graduation research project at a company. Students who wish to do so are required to sign a standard internship agreement in advance, including a research proposal which has been approved by the main mentor. Additional conditions and requirements are stipulated in the internship agreement (master) which can be found at http://studenten.tudelft.nl/en/students/faculty-specific/architecture/forms/. The agreements can be signed at the secretariat of Education and Student Affairs.</p>	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

variant Management in the Built Environment

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

MSc 1 Management in the Built Environment

AR1R016	Design and Construction Management	7
Responsible Instructor	Ing. R.J.G. van Warmerdam	
Responsible Instructor	Dr. J.L. Heintz	
Course Coordinator	Dr. J.L. Heintz	
Instructor	Mr.dr. P. Jong	
Instructor	Dr.ir. M. Prins	
Instructor	Dr.ir. L.H.M.J. Lousberg	
Contact Hours / Week x/x/x/x	35 hours per quarter / 5 hours per week	
Education Period	1	
Start Education	1	
Exam Period	1 2	
Course Language	English	
Required for	Master Real Estate & Housing, Semester 2	
Expected prior knowledge	Bachelor Architecture or equivalent	
Summary	<p>Contemporary buildings require the participation of many different design professions, suppliers of materials and systems, construction companies working together to provide both better service and better product quality in the face of increasingly complex and demanding clients. Steering a project through this complex web of relationships and requirements has become a profession in its own right - Design and Construction Management.</p> <p>This course covers the knowledge and application of project management techniques, building economics and general management skills in the context of project initiation, architectural design, tendering and construction. Working in small groups, students will study a wide range of readings on these subjects and create a wiki representing the knowledge content of the course.</p> <p>This knowledge will be contextualized through a series of case based exercises in which students using real project documents will have to develop management responses to typical situations in the design and construction processes. A combination of peer evaluation, reports and a final exam will ensure that each student receives individual recognition for their work.</p>	
Course Contents	<p>The Design and Construction Management course will cover the range of knowledge required for overseeing these processes, including:</p> <ul style="list-style-type: none"> - design and construction process including the parties involved and their roles, responsibilities, capabilities and tasks - project management concepts and methods - design and construction planning - design and construction costs - project organization - quality management in design and construction - specifications (especially procedural specifications) - tendering 	
Study Goals	<p>The student:</p> <ul style="list-style-type: none"> - has insight into the real estate lifecycle, the different interests of stakeholders and the risks they bare in the building process and their management - has knowledge of project management concepts and methods commonly used in design and construction management, and ability to apply them - has ability to evaluate designs in terms of architectural quality, to determine the felicitous balance between cost and quality, and to defend such choices - has knowledge of building project organization forms, the division of tasks and responsibilities between parties to the building process associated with various organization forms, and their relative (dis)advantages - has knowledge of the types and flows of communication and information common to building project management - has insight into the project management issues raised by the need to apply sustainability measures in both design and construction processes and products - has insight and ability to motivate and lead in project management settings - has ability to critically reflect on the application of project management concepts in design and construction projects 	
Education Method	<p>Study groups The study groups will function to amplify the students ability to read and study a large range of literature relevant to the aims of the course. Each week, the students will be assigned a series of texts; each student must take a share of the texts and prepare a summary. The students then share their summaries and discuss the texts with each other in the study group. The students will then participate in the construction of a wiki in which students will consolidate their summaries on each of the assigned texts.</p> <p>Workshops Workshops can take the form of role-playing or other exercises carried out by the group. The purpose of the workshop is to study the task and to determine the content of the deliverable.</p> <p>Case The course will be structured around one or more cases upon with the assigned tasks will be based.</p> <p>Exam An open question exam on the reading material and in particular on the wiki constructed by the students as a result of their own studies.</p>	
Literature and Study Materials	<p>Principal text: - Winch, G. (2002) Managing Construction Projects. Blackwell Science. Oxford. - Additional texts: scientific publications and other texts as required</p>	
Assessment	<p>Evaluation will be based on:</p> <ul style="list-style-type: none"> - written task report: 20% - wiki group performance: 20% - peer evaluation of task group performance: 10% - exam: 50% 	
Permitted Materials during Tests	None	
Special Information	The maximum marking period is 10 work days.	
Remarks	None	
Period of Education	Quarter	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1R025	Real Estate Management	7
Responsible Instructor	F.T.J. Curvelo Magdaniel	
Course Coordinator	F.T.J. Curvelo Magdaniel	
Instructor	Prof.dr.ir. A.C. den Heijer	
Instructor	Ir. H.J.M. Vande Putte	
Instructor	Ir. M.H. Arkesteijn	
Instructor	Dr. I. Nase	
Instructor	T.E. Jylhä	
Contact Hours / Week x/x/x/x	50 hours per quarter (2 to 12 hours per week)	
Education Period	2	
Start Education	2	
Exam Period	Different, to be announced	
Course Language	English	
Required for	Semester 2 Master Real Estate & Housing.	
Expected prior knowledge	Bachelor Architecture or equivalent.	
Summary	<p>Real Estate Management (REM) is about managing the built environment. On this course, real estate management is studied from the demand perspective, i.e., from the user perspective. The user here refers to a variety of organisations from private to public sectors, from national to global levels, from small to large multinational corporations and organisations across a range of industries. This approach to real estate management is commonly called corporate real estate management (CREM). A distinction should be made with another approach namely real estate management from the perspective of the investors.</p> <p>The main objective of the Real Estate Management course is to align a particular corporations or public authorities real estate portfolio to the needs of the core business (processes) in order to obtain added value for the businesses and to contribute to the overall performance of the corporation. The real estate portfolio has to match both organisations short and long-term objectives as well as the short and long-term altering space demands of users. To achieve the best possible match between demand and supply, several steps are needed: 1) the current real estate demand has to be compared with the current supply; 2) in relation to national and international developments in the real estate market the future demand has to be defined in order to compare the present supply with the future demand; 3) a strategy has to be developed in order to transform the present supply into the future supply. All of this has to be done with taking into account the interests of different stakeholders and technical, functional and financial feasibility.</p>	
Course Contents	<p>On the Real Estate Management course you will learn to design an accommodation strategy from the occupiers perspective, such as, ABN AMRO, Philips, the Dutch Government, the European Commission, AKZO Nobel, MasterCard or a university. Relevant questions are, for example, what type and quality of buildings do the users want and need, what are the organisations goals and how can real estate support these goals, which resources are available for real estate, what is the present condition of the buildings and what is the effect on users, resources and goals. The focus on the course is on building portfolio level, but connections will be made to object level and urban area development.</p>	
Study Goals	<p>After the course, the student will:</p> <ul style="list-style-type: none"> - understand national and international developments in the real estate market in relation to economic, social, organisational, demographic and technological developments and how they influence real estate demand and supply. - understand various subject areas, namely business, construction and real estate economics; financial, economic and cost management; valuation and depreciation methods; law; business administration and management science and the way they interact with real estate management. - be able to identify relevant stakeholders in a case, analyse their demand (objectives) and how the current supply meets this demand; combine relevant developments within and outside the organisation, which influence the demand for real estate and integrate the developments into scenario; and is able to derive the consequences of the scenarios for the organisation and their real estate. - be able to integrate the different stakeholders demands and design an accommodation strategy on portfolio and building level, weigh and select alternative solutions and make a step by step plan. - understand the real estate lifespan cycle at individual building and stock level and be able strategically to shape, organise and direct the associated processes. - be able to apply scientific research (including the associated methods and techniques) in the real estate sector. 	
Education Method	Skills are developed through a real-life case assignment that follows the steps of the DAS frame, through advanced literature and related reflections in the contact sessions and through an open book exam.	
Literature and Study Materials	<p>Compulsory literature</p> <ul style="list-style-type: none"> - Arkesteijn, M.H., Jylhä, T.E., Nase, I., Straub, A. and Vande Putte, H.J.M. (2017) Reader material - De Jonge, H., Arkesteijn, M.H., Den Heijer, A.C., De Vries, J.C., and Vande Putte, H.J.M. (2009), Corporate Real Estate Management, Designing an Accommodation Strategy, Delft: Publikatiebureau Bouwkunde, TU Delft (or update version). - CoreNet Global (2015) The essential guide to corporate real estate, CoreNet Global, Inc., Atlanta, GA. - Slides from the contact sessions. 	
Assessment	<p>Make use of the literature as given in semester 1 research methods:</p> <ul style="list-style-type: none"> - Bryman, A. (2012) Social Research Methods. Oxford: Oxford University Press (4rd edition). Chapter 11, 13, 20, 29 - Emans (2002) (chapter 8, English translation of, Interviewen: theorie, techniek en training. Groningen: Noordhoff, 4e druk). <p>Examination of literature is done by a written exam in week 2.5 (one grade, 60%). Practical application (one grade, 40%) is examined by a real-life case assignment.</p>	
Permitted Materials during Tests	Listed in the course book.	
Special Information	The maximum marking period is 10 work days.	
Remarks	An excursion to the case organization can be part of the program. Sometimes costs need to be covered by the student for the travel.	
Period of Education	Quarter 2	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1R035	Housing Policy, Management and Sustainability	7
Responsible Instructor	Dr. D.K. Czischke Ljubetic	
Course Coordinator	Dr. D.K. Czischke Ljubetic	
Instructor	Prof.dr.ir. M.G. Elsinga	
Instructor	Prof.dr.ir. V.H. Gruis	
Instructor	Dr. M.E.A. Haffner	
Instructor	Ir. M.T. Andeweg	
Instructor	Dr.ir. E. Mlecnik	
Instructor	Prof.dr. P.J. Boelhouwer	
Instructor	Dr.ing. G.A. van Bortel	
Instructor	Ir. A. van Stijn	
Contact Hours / Week x/x/x/x	10 hours per week	
Education Period	2	
Start Education	2	
Exam Period	Different, to be announced	
Course Language	English	
Required for	Semester 2 Master Management in the Built Environment.	
Expected prior knowledge	Bachelor Architecture or equivalent.	
Summary	<p>Improving the economic, social and environmental sustainability of the housing stock constitutes the largest investment challenge in the built environment. At the same time, acquiring the right home is a crucial aspect of a households aspirations, albeit not simply a matter of individual choice. Particularly in cities, people and functions are sharing a limited amount of space, resulting in complex management issues concerning the planning, building, maintenance and demolition of buildings. Furthermore, the trend towards worsening housing affordability in larger cities limits the possibilities of (groups of) users to attain their goals, and hinders social cohesion and urban competitiveness. Thus, housing is strongly linked to social, political and economic developments on different levels: households, estates, cities, regions, the nation state and the European Union level as well. At each level, a variety of people and institutions are playing a part by making strategic decisions. During this course, students will learn the ways in which housing is provided by several institutions and actors for a wide variety of users. The housing market is an imperfect market, resulting in governmental intervention. The way intervention takes place is related to general welfare state principles and established traditions and has changed over the years. The course will explore how these interventions are intertwined with current market and societal developments, and equip students with conceptual and methodological tools to make sound policy and strategic decisions.</p>	
Course Contents	<p>The content of this course is structured around three main thematic areas:</p> <ul style="list-style-type: none"> - Housing systems and institutions - Asset management and circularity in housing - Social sustainability in housing and neighbourhoods 	
Study Goals	<ol style="list-style-type: none"> 1. Understand and explain key housing concepts, policies and practices in the three core thematic fields of the course, namely: housing systems and institutions; asset management and circularity in housing; and social sustainability in housing and neighbourhoods; 2. Critically reflect on key challenges in the above fields and implications for society; 3. Apply the above knowledge through evidence-based policy and/or strategy analysis and formulation in either of the above thematic fields. 	
Education Method	<p>The course's learning activities comprise:</p> <ul style="list-style-type: none"> - Lectures - Expert talks - Site visits to companies and projects - Seminars - Tutorials to support the writing of the course paper. 	
Literature and Study Materials	<ul style="list-style-type: none"> - Doling, J., 'Comparative Housing Policy, Government and housing in advanced industrialized countries', Macmillan / St Martins press, 1997, chapters 1, 3, 4, 5, 9 and 10 - E-reader Housing 	
Assessment	Policy or strategy paper (assignment running throughout the course).	
Tags	<p>Building & Spatial Development Business Design Energy Group Dynamics/Project Organisation Group work Policy Analysis Sustainability</p>	
Period of Education	Semester 1: Second Quarter weeks 11-17	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1R046	Management and Finance 1	6
Responsible Instructor	Drs. P.W. Koppels	
Course Coordinator	Drs. P.W. Koppels	
Instructor	M. Arkesteijn	
Instructor	Prof.dr.ir. V.H. Gruis	
Instructor	Ir. H.J.M. Vande Putte	
Instructor	Dr.ir. L.H.M.J. Lousberg	
Instructor	Drs. P.W. Koppels	
Contact Hours / Week	5 hours per week	
x/x/x/x		
Education Period	1	
Start Education	1	
Exam Period	1 2	
Course Language	English	
Required for	Semester 3 Master Management in the Built Environment (MBE)	
Expected prior knowledge	Bachelor Architecture or equivalent.	
Summary	This course aims at providing students with knowledge and insights in fundamental management and financial concepts that are of relevance for management in the built environment.	
Course Contents	The course consists of two components:	
	Management and organizational principles	
	Study load: 4 ECTS	
	Main discussed topics are:	
	<p>Strategic management Strategy involves the decisions, which an organisation faces, and these decisions determine its success or failure. All organisation face decisions in regard to real estate and real estate decision-making influence organisational performance; therefore, the core elements of strategic management and strategy design for both profit and non-profit organisations, such as housing associations, are addressed in this course.</p>	
	<p>Managerial and organizational principles: Understanding the principles of management and organizational theory is of importance for all students in Management in the Built Environment. Basic concepts such as bureaucracy, control and networks are explained by discussing original texts from some of the icons of management theory.</p>	
	<p>Business ethics and integrity: This part of the course deals with business ethics and issues of integrity and builds upon the Ethics workshop from the Faculty Master of Science introduction program. This course will explain to you both what ethics in general is, and what business ethics is more specifically. On the general side, we will cover the two basic concepts of moral responsibility and moral goodness; and we will look at a principled treatment and definition of the core problems pertaining to integrity and corruption. In the context of business ethics, integrity means that you play fair and that your behaviour as (someone working in and for) a company is free from corruption</p>	
	<p>Finance principles Study load: 2 ECTS</p>	
	Main discussed topics are:	
	<p>Real estate financial modelling: Any decision about real estate involves the commitment of resources over time and each of these decisions involves the comparison of the immediate costs of an action against the value of the future resulting revenues. The basic formulas and procedures that are employed for converting typical real estate future cash flows and risk patterns to present value, given an appropriate discount rate, are explained and applied in financial spreadsheet exercises related to: real estate valuation, development valuation and corporate lease-versus-own analysis assignments.</p>	
	<p>Financing and investing in real estate: Many real estate decisions are made with an investment motive and the magnitude of expected future cash flows are at the centre of investment decision-making. Investment valuation calculations are made whenever a property transaction is contemplated; when maintenance, repair and renovation decisions are made; a building is abandoned or demolished; and when a site is developed. Real estate investments have to be financed with (own) equity or debt and the decision rules that underlie the investment and finance decision are discussed.</p>	
Study Goals	Students are able to:	
	<ol style="list-style-type: none"> 1. explain (profit and not-for-profit) management and organizational concepts that are of relevance for management in the built environment. 2. identify the different management organizational paradigms. 3. evaluate decision-making in the built environment from management and organizational perspective. 4. explain ethical principles in general and identify moral dilemmas in professional real estate practice. 5. apply basic formulas and procedures for converting future cash flows and risk patterns to present value. 6. evaluate the financial feasibility of (public and private) real estate investment decisions. 	
Education Method	Lectures Assignments Workshops	
Literature and Study Materials	eBook Management eReader Management eReader Finance	
Assessment	Three assessment methods are employed that together determine the total weighted average grade of the course: - Written theory exam [weight 55%] - Finance application exam [weight 35%] - Ethics essay assignment [weight 10%]	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Quarter	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1R055	Research Methods Introduction	3
Responsible Instructor	Dr.ir. L.H.M.J. Lousberg	
Course Coordinator	Dr. J.S.C.M. Hoekstra	
Course Coordinator	Dr.ir. L.H.M.J. Lousberg	
Instructor	Dr. J.S.C.M. Hoekstra	
Instructor	T.E. Jylhä	
Contact Hours / Week x/x/x/x	X/X/0/0	
Education Period	1	
Start Education	1	
Exam Period	1 2	
Course Language	English	
Required for	Semester 2. MSc track Management in the Built Environment.	
Expected prior knowledge	Bachelor Architecture and the Built Environment or equivalent.	
Summary	<p>In this course, students will be able to acquire theoretical knowledge and practice their research skills on research proposals, operationalization and the design of structured and semi-structured interviews. A variety of tasks related to an individual writing assignment and reading of the related literature will enhance students understanding of what scientific research is all about. The course is the first of two MBE courses devoted to research methods. This course (AR1R055) can be considered an introduction, whereas the second (AR3R055) next year aims at an advanced level related to the master thesis. The course aims of both courses are to teach analytical concepts, fieldwork methods and academic skills that can be applied by master students Management in the Built Environment in projects of the various courses of the curriculum and beyond.</p>	
Course Contents	<p>The formulation of a research proposal has a prominent place in the course. The first part of the course therefore addresses the development of such a research proposal or research design. Finding a theoretical perspective based on scientific sources, formulating research aim, problem and questions, operationalization, selecting proper data collection methods and practicing writing skills are the main topics of the related assignment. The course focuses on developing structured and semi-structured interviews (mixed method approach).</p>	
Study Goals	<p>The student:</p> <ul style="list-style-type: none"> - knows the main differences between qualitative and quantitative research and understands relevant concepts with respect to scientific research; - has insight in the quality standards applicable to scientific research and is able to compose a research proposal referring to research strategies and methods; - knows how to deal with the operationalization of research questions and conceptual models; - knows how to design a structured and semi-structured interview. 	
Education Method	<p>For the most part the course consists of tutorials/workshops with a central role for group work and feedback. Each session is dedicated to a specific topic and there is an exercise related to this topic. All the exercises together largely constitute the final individual assignment to be delivered in the form of a research proposal.</p>	
Literature and Study Materials	<p>Bryman, Alan (2016) Social Research Methods. Oxford: Oxford University Press (5th edition).</p> <p>Additional materials will be made available on Blackboard before and during the course.</p>	
Assessment	<p>The tutors combined evaluation of the individual assignment in the form of a research proposal including a literature review, research design, operationalization, an interview schedule and interview questions.</p> <p>The final grade must be at least a 6.0. Students who dont pass might be provided the opportunity to re-submit their research proposal after consultation with the tutors.</p>	
Special Information	<p>The maximum marking period is 15 work days.</p>	
Period of Education	<p>September and October. See Blackboard for a detailed schedule.</p>	
Course evaluation	<p>For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/</p>	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

Starting Course MSc1

ARX071	Workshops Faculty of Architecture and the Built Environment	1
Responsible Instructor	Dr.ir. R. Cavallo	
Contact Hours / Week x/x/x/x	X / 0 / 0 / 0	
Education Period	1	
Start Education	1	
Exam Period	none	
Course Language	English	
Course Contents	<p>All new MSc students of the Faculty of Architecture and the Built Environment will start the academic year 2018-2019 with a 3-day workshop programme on 30 & 31 August and 3 September 2018.</p> <p>The programme is developed in cooperation with TPM colleagues of the section "Ethics & Philosophy of Technology". With a mix of lectures, workshops and sessions guided by teachers of the faculty, you will be introduced to (design) ethics, scientific integrity and intercultural communication.</p> <p>With these workshops you will make a first start to cover the ethics engineering learning goals of the MSc programmes. Further, we wish to enhance the interaction between all new students, both Dutch and International, and to introduce you to settings, methods and procedures of the faculty.</p> <p>Participation in the workshops is mandatory for all students starting their MSc 1 programme in September.</p>	
Study Goals	- The student has a basic understanding of moral sensibility, moral analysis skills, moral creativity, moral judgement skills, moral decision-making skills and moral argumentation skills.	
Education Method	Lectures, workshops, role playing game, assignment	
Assessment	Workshops attendance Assessment: V (passed) or NV (failed)	
Special Information	<p>The academic year will start with a three day workshop programme. With a mix of lectures, workshops and sessions guided by teachers of the faculty, you will be introduced to (design) ethics, scientific integrity and intercultural communication. With these workshops you will make a first start to cover the ethics engineering learning goals of the MSc programmes. Further, we wish to enhance the interaction between all new students, both Dutch and International, and to introduce you to settings, methods and procedures of the faculty. The workshops will lay the foundation for your master studies. It is highly recommended for both Dutch and International students to participate in this programme and you will be granted 1 EC after following the whole programme. This EC will be used in your electives list Master 2/3.</p> <p>For more information see website: https://www.tudelft.nl/studenten/faculteiten/bk-studentenportal/onderwijs/master-of-science/workshops-master-students/</p>	
Period of Education	3 days	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

MSc 2 Management in the Built Environment

AR2R016	Management and Finance 2	10
Responsible Instructor	Drs. P.W. Koppels	
Course Coordinator	Drs. P.W. Koppels	
Instructor	Dr.mr. F.A.M. Hobma	
Instructor	Mr.dr. P. Jong	
Instructor	Dr.ir. A. Koutamanis	
Instructor	Prof.mr.dr. M.A.B. Chao-Duivis	
Instructor	Drs. P.W. Koppels	
Instructor	Dr. I. Nase	
Contact Hours / Week x/x/x/x	3/4 hours per week	
Education Period	3 4	
Start Education	3	
Exam Period	3 4	
Course Language	English	
Required for	Semester 3 Master Management in the Built Environment (MBE).	
Expected prior knowledge	Bachelor Architecture or equivalent.	
Summary	This course aims at providing students with knowledge and insights in fundamental economic, law and computational concepts that are of relevance for management in the built environment.	
Course Contents	<p>Law 4 ects The Law part covers the basic elements that are of relevance for any building project and plan in the built environment. The fields that are taught are: Building contract law, Procurement law, Legal entities, Property law, Planning law, Environmental law and Public private partnerships. It includes private law and public law, from the building level to the level of urban development.</p> <p>Economics 2 ects The economics part covers real estate, urban and regional economic topics that are required to make informed real estate investment and development decisions. The real estate market can be considered a system of three interrelated markets: the space market, the asset market and the construction & development market. The characteristics of the real estate market and the interrelationships between the space, asset and development market are discussed together with the urban economic context in which most of the real estate development takes place.</p> <p>Information management Study load: 4 ects The Information management part of the course aims at insights into current and emerging approaches to data and information for the purposes of management in the built environment. It provides a foundation for understanding the production of data in the built environment, explains current computerization tendencies and introduces methods for controlling and utilizing information from a managerial perspective.</p>	
Study Goals	<p>Students are able to:</p> <ol style="list-style-type: none"> 1. contrast the different building contract models. 2. evaluate the strengths and weaknesses of different contract models. 3. describe the essential rules regarding procurement. 4. address legal aspects of real estate development projects from the European and Dutch Planning and Environmental legislation perspective. 5. discuss the different forms of cooperation between public and private sectors regarding buildings and urban development. 6. relate real estate market characteristics to observed market dynamics. 7. apply the basic principles of urban economics in real estate market analysis. 8. assess the economic impact of real estate development. 9. explain current digital design approaches in relation to management. 10. identify possibilities and limitations for information management in digital design. 11. explain relations between big data and the built environment. 12. identify big data possibilities and limitations for management in the built environment. 	
Education Method	Lectures Assignments Workshops	
Literature and Study Materials	<ul style="list-style-type: none"> - M.A.B. Chao-Duivis, A.Z.R. Koning, A.M. Ubink, (2013). A Practical Guide to Dutch Building Contracts. 3rd Edition. Published by: IBR, The Hague. - F.A.M. Hobma and P. Jong (2016). Planning and Development Law in the Netherlands. Published by: IBR, The Hague. - Uniform Administrative Conditions for the Execution of Works and Technical Services 2012 (UAC 2012). - McDonald, J. F., & McMillen, D. P. (2010). Urban economics and real estate: theory and policy John Wiley & Sons. - Eastman C. et al. (2008). BIM Handbook, John Wiley & Sons. - Smith, D.K. and Tardif, M. (2008). Building information modelling, John Wiley & Sons. 	
Assessment	<p>Three assessment methods are employed that together determine the total weighted average grade of the course:</p> <ul style="list-style-type: none"> - Written theory exam [weight 50%] - Law assignments [weight 10%] - Information management paper [weight 40%] 	
Permitted Materials during Tests	The exam is an open book exam; you are allowed to take all the compulsory literature, PowerPoints handouts, your own notes and summaries and if desired a dictionary with you. However, it is not permitted to take former exam reference answers with you!	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Third Quarter and Fourth Quarter	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR2R025	Urban (re)development game: Integrating Planning, Design and Property Development	10
Responsible Instructor	Y. Chen	
Course Coordinator	Y. Chen	
Instructor	Prof.dr. E.M. van Bueren	
Instructor	Dr.mr. F.A.M. Hobma	
Instructor	Mr.dr. P. Jong	
Instructor	Dr. C. Maat	
Instructor	Dr.ir. M. Spaans	
Instructor	Dr.ir. P.L.M. Stouten	
Instructor	Ir. H.W. de Wolff	
Instructor	Dr.ir. R. Binnekamp	
Instructor	Dr.ir. S. Zijlstra	
Instructor	Dr.ir. L. Volker	
Instructor	Dr.ir. R.S. van der Kuij	
Instructor	Dr.ir. T.A. Daamen	
Instructor	Dr.ir. E.W.T.M. Heurkens	
Instructor	Prof.dr. P.J. Boelhouwer	
Instructor	Drs. P.W. Koppels	
Instructor	Dr.ing. G.A. van Bortel	
Instructor	Y. Chen	
Instructor	Dr.ir. E.H. Stolk	
Instructor	Dr. W.J. Verheul	
Instructor	Ir. L.G.C. Heijnders	
Instructor	Dr. I. Nase	
Contact Hours / Week x/x/x/x	8,5 hours per week	
Education Period	4	
Start Education	4	
Exam Period	4 5	
Course Language	English	
Required for	Semester 3, Master Real Estate & Housing.	
Expected prior knowledge	Semester 1 Master Real Estate & Housing.	
Summary	During this unit course the theory and the practice of managing urban (re)development processes is explored through lectures, role-playing simulation in urban (re)development project at area scale, as well as at the portfolio and object scale.	
Course Contents	<p>The unit of course aims to train students to grasp an integral approach when managing urban (re)development both at the urban area scale and at the portfolio and object scale. Through a role-playing simulation project, students will be given design assignments that drive them to (re)develop a complex urban location with both residential and non-residential elements.</p> <p>The assignment aims at drawing up a development plan for the location. The students, through this exercise, will play the roles of local authorities and private actors as well as third parties of the area and negotiate in their respect roles to reach an optimal solution. Students will conduct feasibility analysis of a particular real estate objective at the portfolio and object scale.</p> <p>This unit will equip students with sufficient skills to deal with the assignment in the simulation with a series of lectures and sessions of fieldwork, role assistance and group supervision. Students will learn about the context, goal, actors and means of realisation related to each phase of the urban area development cycle. In this process, students have to consider how to make a balance between market demand, spatial quality requirement with available means.</p>	
Study Goals	<p>The unit aims to enable students to:</p> <ul style="list-style-type: none"> - understand the changing context of global and local environment and economic, social and cultural elements which contribute to various urban problems - understand the context, content, players and means of implementation during the cyclic phases of urban area development; identify positions, objectives and means as well as strategies of involved parties in different phases - analyze the social-economical and urban context as well as the status and function the area can possibly achieve in the future - set up functional programs for the area in question; identify spatial possibilities and, the feasibility and financial consequences of investments; develop institutional and financial plans for different phases in order to manage and oversee the development design and implementation process, thereby effectively integrating the input of the various actors in the project - conduct feasibility studies of real estate portfolio strategy with involved and/or potential stakeholders and the cost-benefit analysis of a particular building block at the object level - integrate multidisciplinary knowledge through teamwork, negotiate and communicate with different parties, present project results and reflect the development process with an analytical report 	
Education Method	<p>The program of The Urban (Re)development Game comprises both theory and practicum components in the form of role-playing simulation:</p> <ul style="list-style-type: none"> - Theory: the knowledge of the theory on managing urban development is acquired through lectures and literature study - Practicum: the practice skills are acquired through role-playing in a management game, with support from role lectures, supporting literature and consultation provided by role assistance and group supervision. Students are asked to work on a master plan of a specific location and then examine its feasibility plan of a particular role at portfolio and object level. 	
Literature and Study Materials	<p>The compulsory literature for Theory is:</p> <ul style="list-style-type: none"> - Franzen, A., Hobma, F., de Jonge, H. and Wigmans, G (eds) (2011) Management of Urban Development Processes: governance, design, feasibility. Amsterdam: Technpress. - Adams, D. & S. Tiesdell (2012), Shaping Places: Urban Planning, Design and Development. London: Routledge. <p>Other digital compulsory and supporting literature is available from the blackboard and is updated yearly.</p>	
Assessment	<p>The result will be determined by:</p> <ul style="list-style-type: none"> - the theory component, assessed through individual 3,0 hour exam - the practicum component - assessed through the quality of design assignment, the quality of presentation performance, the quality of argument and reflection in the end report 	

	The end result should at least be a 6,0.
Permitted Materials during Tests	Dictionary
Special Information	The maximum marking period is 10 work days.
Period of Education	Fourth Quarter (7 weeks)
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/

AR2R036	Re-design: from area to building block	10
Responsible Instructor	Dr. H.T. Remoy	
Course Coordinator	Dr. H.T. Remoy	
Instructor	Mr.dr. P. Jong	
Instructor	Dr.ir. L. Volker	
Instructor	Dr.ir. E. Mlecnik	
Instructor	Dr. H.T. Remoy	
Instructor	Ir. J.S.J. Koolwijk	
Contact Hours / Week x/x/x/x	12 hours per week	
Education Period	3	
Start Education	3	
Exam Period	none	
Course Language	English	
Required for	Semester 3 Master Management in the Built Environment	
Expected prior knowledge	Semester 1 Master Management in the Built Environment	
Summary	<p>Re-design is based on the MBE MSc1 and invites students to apply knowledge acquired so far in the track to analyse and re-design cases in a demanding, realistic context. It also allows students to test and expand their capabilities and interests. In Re-design students are introduced to the structure and processes of management at multiple, interconnected levels involving individual buildings, larger complexes, the areas they belong to, the portfolios they belong to, relevant policies and governance. The course focuses on the development of essential cognitive and practical skills for applying management methods and techniques at these levels.</p>	
Course Contents	<p>In Re-design students examine a particular case from various points of view and at different levels of abstraction organised in a sequence of three phases:</p> <ul style="list-style-type: none"> - Analysis: information gathering and processing so as to present a comprehensive, coherent and consistent picture of the case and its problems - Precedent analysis: analyse and evaluate a specific aspect of a project (process and products) with respect to effectiveness, efficiency, consistency, comprehensiveness and reliability. - Project definition and plan development: formulation of the aims, performance demands and possible strategies of the actors for the development process and products on the basis of analysis results. Plan development of effective and efficient processes that comply with the project definition. 	
Study Goals	<p>In the first and second phase students learn to:</p> <ul style="list-style-type: none"> - understand the background of problems and their interconnections - evaluate project goals, approaches and performance <p>In the third phase students learn to:</p> <ul style="list-style-type: none"> - develop project plans in terms of actions, transactions and deadlines - develop project briefs in relation to user needs and priorities - develop solutions at various levels of abstraction and from different viewpoints - evaluate a project as a process and in terms of its products with respect to effectiveness, efficiency, consistency, comprehensiveness and reliability. 	
Education Method	The students work individually in the analysis (first and second) phase, supervised by a tutor. In the third phase, the students work in small groups under supervision of tutors.	
Literature and Study Materials	All literature required for Re-design is already covered in semester 1 of the Management in the Built Environment Master track and in the Fundamentals courses of semester 1 and 2. Other digital compulsory and supporting literature is available from the blackboard and is updated yearly.	
Assessment	The results of all assignments are presented orally and through written reports.	
Special Information	The maximum marking period is 10 work days.	
Period of Education	First quarter semester 2	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

MSc 3 Management in the Built Environment

AR3R010	MSc 3 Graduation Laboratory Management in the Built Environment	9
Responsible Instructor	Prof.dr.ir. V.H. Gruis	
Responsible Instructor	Dr.ir. A. Koutamanis	
Course Coordinator	Dr.ir. A. Koutamanis	
Contact Hours / Week x/x/x/x	60 hours per semester	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Required for	Management in the Built Environment Master curriculum in the fourth semester and the completion of the master thesis.	
Expected prior knowledge	Bachelor in Architecture, Urbanism and Building Sciences TU Delft or a similar Bachelor, and Master 1-2 of the Management in the Built Environment track of the Faculty of Architecture.	
Parts	P1 and P2	
Course Contents	AR3R010 comprises the first part of the graduation process in the Master track MBE. In it students complete the first two assessments (P1 and P2) by selecting a research subject and mentor team; conducting literature and market research; developing a problem statement, objectives and goals, and an approach to solving the problem and reaching their goals. To facilitate the process, students are provided with a number of graduation subjects from the research programme of MBE.	
Study Goals	<p>Problem analysis The student has knowledge and understanding of research approaches and methods for translating a subject with scientific and societal relevance into a problem analysis, problem statement, research objectives and research questions in a critical and grounded manner.</p>	
	<p>Literature review The student is familiar with fundamental and recent literature in the area of MBE, and is able to conduct a comprehensive, in-depth literature review that retrieves literature relevant to their graduation project, through which they can substantiate research hypotheses and approaches.</p>	
	<p>Synthesis The student has a creative, innovative and investigative approach to solving the selected problems. The student is capable of identifying relevant knowledge in their own and related areas, acquired in part through the literature review, and systematically utilising it for the definition of a coherent theoretical framework and conceptual models for their research.</p>	
	<p>Methodology The student is capable of selecting appropriate research methods in a transparent and substantiated manner and of applying these in a scientifically and ethically responsible manner.</p>	
	<p>Acceptability and relevance The student is capable of evaluating their own process, products and performance in relation to current scientific and professional knowledge. The student is able to formulate clear conclusions and recommendations for further research and application, and through these demonstrate that their work meets the standards of scientific research and contributes to the solution of societal problems.</p>	
	<p>Time management The student is aware of the requirements for interim and end products, has sufficient time management skills to make a realistic estimate of activities and the amount of time needed for each of them and, on the basis of these, can produce a reliable working plan.</p>	
	<p>Reporting and communication The student is capable of producing informative written reports, suitable to a scientific and professional audience, that provide a structured, coherent, consistent, precise and insightful account of their research process and products. The student is capable of delivering oral presentations of their work in an informative and engaging manner and at an appropriate scientific level, using valid arguments in discussing their subject. The student is open to constructive criticism and is willing to learn from feedback and comments.</p>	
Education Method	In AR3R010 students discuss their progress in developing their research proposals in plenary sessions, thematic group sessions and individual sessions with the course instructors and their mentors.	
Literature and Study Materials	See Brightspace	
Assessment	<p>- P1: halfway through the course, each student presents the progress of their work in the form of a preliminary report (draft research proposal and plan for the thesis) - P2: at the end of the course, each student presents a final research proposal and plan for the completion of their thesis (in AR4R010)</p>	
Exam Hours	P1 and P2 are scheduled by the course student assistant within the assigned periods, following consultation with the mentor teams	
Special Information	The maximum marking period is 10 work days.	
	<p>Students have the option to carry out their graduation research project at a company. To do so are required to sign a standard internship agreement in advance, including a research proposal which has been approved by the main mentor. Additional conditions and requirements are stipulated in the internship agreement (master) which can be found elsewhere on the Intranet of the Faculty. The agreements can be signed at the secretariat of Education and Student Affairs.</p>	
Period of Education	Semester	
Concept Schedule	See Brightspace	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

Compulsory Choice (2 out of 3)

AR3R057	Case study methods	3
Responsible Instructor	Dr. C.J. van Oel	
Course Coordinator	Dr. C.J. van Oel	
Instructor	Dr. C.J. van Oel	
Contact Hours / Week x/x/x/x	12 hours per quarter	
Education Period	1 2 3	
Start Education	1 2 3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	AR1R055	
Course Contents	For QRM2, 2 courses from AR3R057 (case studies), AR3R058 (Operation Research Methods) and AR3R059 (Applied statistics) need to be chosen. This specialisation in case studies will discuss the theory of case study research. Issues to be addressed include the philosophical underpinning of doing case studies, selection of cases, subjectivity, transparency, trustworthiness and generalizability of research findings. As part of the course, a case study will be conducted in small groups for which one needs to enrol from blackboard. Practicing includes in-depth interviewing , transcribing the interview, using Atlas.ti to analyse the data and reporting.	
Study Goals	The student: - is able to operationalise theoretical/methodological concepts into qualitative and quantitative terms and indicate which analyses and syntheses fit the questions to be solved on the relevant level of scale - is able to select one or more methods applicable to the problem situation at hand - is able to use and elaborate the method(s) chosen to generate knowledge and answering the research question.	
Education Method	Masterclasses, learning-by-doing-a-case-study	
Literature and Study Materials	Bedrettin Yazan (2015). Three Approaches to Case Study Methods in Education: Yin, Merriam, and Stake. The Qualitative Report 2015 Volume 20, Number 2, Teaching and Learning Article 1, 134-152 A. Bryant & K. Charmaz (eds). The Sage Handbook of Grounded Theory. Sage Publications Ltd. 2010. ISBN: 9781849204781. Recommended.	
Assessment	- As a group reporting includes a reporting powerpoint presentation and additional annexes including the full transcript, the audio file, and output from data analyses software (Atlas.ti) - Minimum mark is a 6,0.	
Special Information	The maximum marking period is 15 work days.	
Elective	Yes	
Tags	Research Methods	
Period of Education	Quarter 1, quarter 2 and quarter 3. Not in quarter 4!	
Minimum aantal deelnemers	8	
Maximum aantal deelnemers	18	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR3R058	Operations research methods	3
Responsible Instructor	Dr.ir. R. Binnekamp	
Course Coordinator	Dr.ir. R. Binnekamp	
Instructor	Dr.ir. R. Binnekamp	
Instructor	Ir. M.H. Arkesteijn	
Contact Hours / Week x/x/x/x	12 hours per quarter	
Education Period	1 3	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	AR1R055	
Course Contents	<p>The mission of this course is to teach methodological concepts, research methods and problem solving methodologies that can be applied by (MBE-)students in their final year project (master thesis). A distinction will be made between description-driven methodologies, with a focus on generating knowledge to understand, explain and predict (theoretical empirical, probabilistic) and prescription-driven methodologies, with a focus on generating knowledge to be used to design solutions to solve problems (theoretical formal, deterministic).</p> <p>The course will start with an introduction to the domain of problem solving methodologies in science, both in the technological design sciences as well as in the social management sciences, including mathematical models, operations research, simulation, logical argumentation and mathematical-formal logical systems (software supported) and a critical appraisal of these methodologies.</p> <p>The differences and similarities between problem solving in operations research methods and in empirical research methods will be explained using examples from graduation theses and professional projects in the fields of design and construction management, real estate management and housing. On the basis of case studies, comparative analysis and the systems approach (system thinking and system theory) methodological difficulties concerning practical application and integration of knowledge, theories, methods and techniques will be analyzed.</p> <p>There will be lectures and exercises regarding basic concepts, problem solving strategies and strategic inter-actor design methods, project set-up and operationalization as input to getting started with the graduation thesis.</p>	
Study Goals	<p>When you have completed this course you will be able to:</p> <ol style="list-style-type: none"> 1 Characterize different types of management, decision making and design problems in the fields of architecture, urbanism and building science; 2 Understand the complexities and subtleties of these problems, from a descriptive point of view as well as a prescriptive point of view; 3 Describe the overall process of formulating, analyzing and re-structuring a management, decision making and/or design problem in a solvable way; 4 Understand the various theoretical perspectives and quantitative methods in operations research, managing modelling and choice making; 5 Represent and re-structure a management, decision making and/or design problem in a mathematical design and decision model; 6 Select one or more methods applicable to the problem situation at hand; 7 Make a critical methodological appraisal of scientific quantitative operations research studies. 	
Education Method	Master classes with discussions and presentations of staff and students, combined with assignments and practical exercises.	
Course Relations	<p>Inter-Actor Design, Managing, Modelling and Making Choices. Binnekamp et al, IOS Press, to be published.</p> <p>Engineering Design. Clive Dym and Patrick Little. Wiley International, 2004.</p> <p>Recommended:</p> <p>Bedrijfskundig Management, A.C.J. De Leeuw. Koninklijke Van Gorcum, 2002.</p> <p>Managerial Decision Modelling. Cliff T. Ragsdale. Thomson South-Western, 2007.</p> <p>Strategy Safari, A Guided Tour Through The Wilds Of Strategic Management, Bruce W. Ahlstrand, &#8194;Joseph Lampel and &#8194;Henry Mintzberg. Simon and Schuster, 2005.</p>	
Assessment	<p>The mark will be based on the evaluation of a written assignment and on 2 mathematical models (report).</p> <p>Minimum mark is a 6,0.</p>	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Quarter 1 and 3	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR3R059	Applied statistics	3
Responsible Instructor	Dr. C.J. van Oel	
Course Coordinator	Dr. C.J. van Oel	
Instructor	Dr. C.J. van Oel	
Contact Hours / Week x/x/x/x	16 hours per quarter	
Education Period	1 2 4	
Start Education	1 2 4	
Exam Period	none	
Course Language	English	
Expected prior knowledge	AR1R055	
Course Contents	<p>For QRM2, 2 courses from AR3R057 (case studies), AR3R058 (Operation Research Methods) and AR3R059 (Applied statistics) need to be chosen.</p> <p>The mission of this course is to teach applied statistics for building sciences</p> <p>The course consists of a series of 5 hands-on blended learning practices, provided as a two weeks intensive. There will be several statistical approaches available (e.g. t-test, Cronbach alpha, crosstabs, multivariate (hedonic) regression, discrete choice modelling which is the technique behind the vignettes methods as used in questionnaires, and logistic regression which might be used in comparative studies.</p>	
Study Goals	<p>The student:</p> <ul style="list-style-type: none"> - is able to operationalise theoretical/methodological concepts into quantitative terms and indicate which analyses and syntheses fit the questions to be solved on the relevant level of scale. - is able to select one or more methods applicable to the problem situation at hand - is able to use and elaborate the method(s) chosen to generate knowledge and answering the research question. 	
Education Method	Master classes combined with assignments and practical exercises.	
Literature and Study Materials	Field, A., 'Discovering statistics using SPSS', Sage Publications Ltd, 2013, 4th edition, ISBN 9781446249185	
Assessment	<ul style="list-style-type: none"> - The mark will be based on the evaluation of a final test that is taken at the end of the 2 weeks intensive. - Minimum mark is a 6,0. 	
Special Information	The maximum marking period is 15 work days.	
Period of Education	Quarter	
Minimum aantal deelnemers	8	
Maximum aantal deelnemers	15	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

Free Electives 15 ECTS

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

MSc 4 Management in the Built Environment

AR4R010	MSc 4 Graduation Laboratory Management in the Built Environment	30
Responsible Instructor	Prof.dr.ir. V.H. Gruis	
Responsible Instructor	Dr.ir. A. Koutamanis	
Course Coordinator	Dr.ir. A. Koutamanis	
Contact Hours / Week x/x/x/x	25 hours per semester	
Education Period	None (Self Study)	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Required for	Final graduation	
Expected prior knowledge	Master 1, 2 and 3 of Master track Management in the Built Environment (MBE)	
Parts	P3, P4 and P5	
Course Contents	AR4R010 is the second and final part of the graduation process in the Master track MBE. In it, students work towards the completion of their graduation thesis under supervision by the mentor team appointed in AR3R010.	
Study Goals	Based on the P2 results in AR3R010 and supervised by the mentor team, students individually conduct research towards completion of their graduation project, in a way that demonstrates their ability to meet the final learning goals of the MBE Master track, as well those of the Faculty of Architecture & the Built Environment and of Delft University of Technology.	
Education Method	Individual research towards completion of a Master thesis, under supervision by two mentors.	
Literature and Study Materials	See Brightspace	
Assessment	<ul style="list-style-type: none"> - P3: halfway through the semester each student delivers an interim presentation and a draft graduation report. - P4: at the end of the semester each student delivers a presentation of the completed project and a draft final graduation report. - P5: having passed the P4 exam, each student finalises their final graduation report and defends it in the final examination session. 	
Exam Hours	<ul style="list-style-type: none"> - P3: scheduled by each student individually - P4 and P5: scheduled centrally by the Faculty of Architecture & the Built Environment, upon request by the student 	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Semester	
Concept Schedule	See Brightspace	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

variant Landscape Architecture

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

MSc 1 Landscape Architecture

AR1LA010	Villa Urbana: Design of an Experimental Ensemble	6
Responsible Instructor	D. Piccinini	
Course Coordinator	Dr.ir. I. Bobbink	
Instructor	D. Piccinini	
Contact Hours / Week x/x/x/x	56 hours per quarter	
Education Period	1	
Start Education	1	
Exam Period	1 2	
Course Language	English	
Expected prior knowledge	Bachelor Bouwkunde Delft and similar. For more information ask the grading committee.	
Summary	<p>The topic of the first quarter of the Msc Landscape Architecture is the discovery of the landscape as an object of architectural design.</p> <p>The quarter consists of studio, lecture series, seminar and workshop. The courses deliver tools and techniques for landscape architectonic research and design, that will be integrated in the studio.</p> <p>The emphasis in the design studio, Villa Urbana, is on the spatial and sensory qualities of landscape and on the relation between space and time: the expression of landscape features and processes in the design and the relation between movement and experience. The brief is the positioning and design of a garden, an architectonic ensemble and routings to engage with the landscape.</p>	
Course Contents	<p>Overall Quarter 1</p> <p>Architecture and Landscape explores landscape as an object of architecture. The relationship between building, city and landscape, between urban culture and nature and the understanding of landscape in terms of time and space are its central themes. The object of study is the garden and the ensemble connected by routing. Here the implicit qualities of landscape are made explicit and are given form and expression.</p> <p>The relationship between landscape architectonic space and interior, between urban culture and nature and the understanding of landscape in terms of time and space are central themes. This is expressed most explicitly in the garden: the most condensed entity in which the historical, functional and spatial complexity of the landscape are made manifest. The goal is not only to investigate the influence landscape can exert on architecture, but also what architecture does with the landscape, exposing how the point of departure for a genuine design culture lies in a merger of the two.</p> <p>The brief is the positioning and design of an ensemble of house and garden built with a landscape architectonic toolbox. How can the architectonic design influence a landscape in the process of transformation? The core of the assignment is the architectural elaboration of the relationships between the different scales of landscape-garden-house-fireplace-house-garden-landscape. The focus of the design work is on spatial form and relationships, on sensory experience, and on the gradual transformation of the landscape. Attention is placed on the interpretation of the characteristics of the landscape, the positioning of the building(s), the routing, the vistas, the dimensions of the internal and external spaces, the detailing of the transitions between the internal and external spaces and the detailing and materialisation of the garden.</p> <p>The broader studio aims are to demonstrate the primary tools of the landscape architect, to gain understanding of the landscape, to build up compositional knowledge and skills and to develop your personal design 'handwriting'. Parallel to the design course integrated exercises address comparative analysis and 3d-modelling as instruments for design.</p>	
Study Goals	<p>The student is able to</p> <ul style="list-style-type: none"> - identify, interpret and interrelate qualities addressed of landscape from a phenomenological perspective: the landscape dimension, scale and space; the sensory aspects of the environment; simple landscape processes: relationships between (manmade changes in) environmental conditions and resulting plant societies - argue the relationship between the phenomenological landscape analysis and the landscape architectural design <p>Composition</p> <p>The student is able to</p> <ul style="list-style-type: none"> - create an explicit relation between context and spatial composition, expressing aspects of time and movement and the sensory qualities of the landscape. - transform landscape architectonic composition schemes, references and elements into a new design. - create a coherent and lucid story line from concept to detail. <p>Presentation and communication</p> <p>The student is able to</p> <ul style="list-style-type: none"> - demonstrate a variety of possible and experimental presentation and communication techniques, expressing the scale, materials (texture/colours), time and movement of the landscape. 	
Education Method	Studiowork Workshop Excursion Self study	
Course Relations	The first quarter of the Masters Landscape Architecture consists of studio (AR1LA010), lecture series (AR1LA020), seminar/fieldwork (AR1LA031) and workshop (AR1LA040). The courses deliver tools and techniques for landscape architectonic research and design.	
Literature and Study Materials	<ul style="list-style-type: none"> - Piccinini, D. (2018), Quarter Guide Q1 Architecture and landscape. - Steenberg, C.M., Meeks, S. and Nijhuis, S. (2008), Composing Landscapes; Analysis, Typology and Experiments for Design. Basel, Boston, Berlin, Birkhauser. - Dee, C. (2001), Form and fabric in landscape architecture; a visual introduction. Londen, New York: Spon Press. - Bell, S. (2004), Elements of visual design in the landscape. New York: Spon Press. 	
Assessment	Oral presentation Posters physical 3D-model	
Special Information	The maximum marking period is 10 work weeks.	
Period of Education	Quarter	
Leerstoel	Landscape Architecture	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1LA020	Landscape as Object of Architecture	3
Responsible Instructor	D. Piccinini	
Course Coordinator	Dr.ir. I. Bobbink	
Instructor	Dr.ing. S. Nijhuis	
Contact Hours / Week x/x/x/x	28 hours per quarter	
Education Period	1	
Start Education	1	
Exam Period	1 2	
Course Language	English	
Expected prior knowledge	Bachelor Bouwkunde Delft and similar. For more information ask the grading committee.	
Summary	Several lectures - with the history of landscape architecture as a continuous thread - will give the input for an individual essay about theories, methods, techniques and concepts of landscape architecture.	
Course Contents	<p>Overall Quarter 1</p> <p>Architecture and Landscape explores landscape as an object of architecture. The relationship between building, city and landscape, between urban culture and nature and the understanding of landscape in terms of time and space are its central themes. The quarter consists of studio, lecture series, seminar and workshop.</p> <p>Lecture series</p> <p>The object of study is the garden: as the most condensed unity in which the historical, functional and spatial complexity of the landscape are made manifest. Here the implicit qualities of landscape are made explicit and are given form and expression. The relations between building, city and landscape, between urban culture and nature and the understanding of landscape in terms of time, space and nature are discussed.</p> <p>Seminal stages and objects in the development of landscape architecture will be addressed, by means of discussing and presenting explanatory design examples. The emphasis is on the discovery and study of the complex rules with which a design is built up and how the examples, by the reoccurrence of the same elements and orders, can be compared and characterized. The involved theories, concepts and design aspects are brought into a wider scope during the lectures, addressing analytical and compositional techniques and typological research.</p> <p>The concluding essay demands a critical attitude towards the relation of architecture and landscape and offers a basis for a lively discussion on the topic</p>	
Study Goals	<p>Students are able to compare, judge and apply the relation of composition and perception of landscape architectural space, based on:</p> <ul style="list-style-type: none"> - Landscape architectural theory, methods and instruments - History of landscape architecture - Landscape architectural prototypes, typologies and transformations <p>Students are able to structure and construct an argument based on comparison of precedentes and literature review.</p> <p>Students are able to write an academic paper, convincing of their knowledge of the former, using the application of valid rules of academic writing.</p>	
Education Method	<ul style="list-style-type: none"> - Lecture series on history, theory and composition in landscape architecture, focusing on seminal designs. - Lecture on basics of scientific writing - Development of own discourse and arguments about a chosen topic within the scope of the lecture series by comparison and by literature review. - Write/rewrite an abstract and final essay on the chosen topic. 	
Course Relations	<p>The first quarter of the Masters Landscape Architecture consists of studio (AR1LA010), lecture series (AR1LA020), seminar (AR1LA031) and workshop (AR1LA040).</p> <p>The courses deliver tools and techniques for landscape architectonic research and design.</p>	
Literature and Study Materials	<ul style="list-style-type: none"> - Piccinini, D. , 'Quarter Guide Q1 Architecture and landscape - Steenbergen, C.M. and Reh, W., 'Architecture and Landscape - the Design Experiment of the Great European Gardens and Landscapes', Basel, Boston, Berlin, Birkhauser, 2003 - Craswell, G. (2012). Writing for Academic Success. A postgraduate guide. London; SAGE Publications. 	
Assessment	Final essay	
Special Information	The abstract will be reviewed within 5 work days. The maximum marking period for the final essay is 15 work days.	
Period of Education	Quarter	
Leerstoel	Landscape architecture.	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1LA031	TOPOS	3
Responsible Instructor	D. Piccinini	
Course Coordinator	Dr.ir. I. Bobbink	
Instructor	Ir. N.M.J.D. Tillie	
Instructor	Ir. F.D. van Loon	
Contact Hours / Week x/x/x/x	28 hours per week	
Education Period	1	
Start Education	1	
Exam Period	1 4 5	
Course Language	English	
Summary	This courses focuses on the relationships between geology, hydrology, soil, land use, vegetation and ecosystems, and the genesis and appearance of Dutch landscapes as fundament for landscape architecture.	
Course Contents	<p>Landscapes are complex ecological systems, which consist of different components, processes and patterns in space and time. The interaction between geology, soil, geomorphology, hydrology, vegetation, animals and humans influence result in different landscapes with their own evolution and history. Within the different landscape types three aspects determine their genesis and appearance:</p> <ol style="list-style-type: none"> 1) the functioning of ecosystems and their species (e.g., succession, hierarchy, time scale); 2) spatial conditions determined by the natural landscape (e.g., habitats, plant communities, distribution and configuration of landscape elements); 3) relation to society (e.g., historical geography, land use and valuation of natural resources). <p>Important landscape properties such as: abiotic factors, biotic patterns and processes, and historical human influences serve as a base to identify spatial problems and solutions in the realm of landscape architecture.</p>	
Study Goals	<p>The student</p> <ul style="list-style-type: none"> - is able to recognise and describe the different Dutch Landscapes. - is able to sketch and discriminate differences of different landscape typologies on different scales. - is able to distinguish and argue the current architectural and spatial appearances of landscapes in relation to the natural, cultural and urban layers. 	
Education Method	<p>The course consists of a series of lectures and field trips. The lectures will require preparation of the student by studying assigned texts.</p>	
Course Relations	<p>The first quarter of the Masters Landscape Architecture consists of studio (AR1LA010), lecture series (AR1LA020), seminar (AR1LA031) and workshop (AR1LA040). The courses deliver tools and techniques for landscape architectonic research and design. This course the AR1LA031 is open to all master students.</p>	
Assessment	<p>Written report of fieldwork including images and analytical drawings. Please notice that we ask a financial contribution for all excursions.</p>	
Special Information	The maximum marking period is 10 work days.	
Period of Education	MSC1/1	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1LA040	Green Architecture: Designing with Plants	3
Responsible Instructor	D. Piccinini	
Course Coordinator	Dr.ir. I. Bobbink	
Instructor	Dr.ir. S.I. de Wit	
Instructor	D. Piccinini	
Contact Hours / Week x/x/x/x	28 hours per quarter	
Education Period	1	
Start Education	1	
Exam Period	1 2	
Course Language	English	
Expected prior knowledge	Bachelor Bouwkunde Delft and similar. For more information ask the grading committee.	
Summary	During this workshop the role of planting in landscape architecture will be explored and discussed in terms of space and time dynamics. The brief is to understand the formal typology of trees, to make a planting plan determining the type of arrangement, type of habitus and type of tree and to visualise its development through time.	
Course Contents	Trees and shrubbery, hedges and herbaceous plants have always been a core design element of landscape architecture for creating spaces, providing accents or orientation and offering shelter against the natural forces. They are also living organisms with a specific relationship with their surroundings. In this workshop the emphasis is on basic knowledge of assortment, its architectonic application in order to define and organise space into imaginative compositions that evolve naturally through time. Crucial is the understanding of the relationship of planting with architectonic spaces and objects, with their natural surroundings (habitat) and their evolution in time.	
	Starting point is the architecture of plants: the habitus or appearance. This consists of formal characteristics such as: size, shape, textures and colours, but also of time dynamics such as seasonal changes and growth. The brief is to understand the formal typology of trees, to make a planting plan determining the type of arrangement, type of habitus and eventually type of tree and to work with its development through time in a given situation.	
	Field trips and literature study will provide the material for studying and documenting examples of several species in order to discover both their architectonic and biological characteristics. You will also study different arrangements and representations of planting, such as regular or irregular grouping of trees (single tree, pair of trees, group of trees and line of trees), application of clipped or unclipped hedges (hedged spaces, continuous hedges, hedge screens, hedge parcels and free-form hedges). These aspects will be used as design elements to create, organise and dramatize space.	
Study Goals	The students - can demonstrate basic knowledge in plant ecology. - can identify and interpret the formal qualities of plants and their spatial and perceptual consequences. - can create an explicit and visible relation between spatial concept and tree characteristics and argue the relationship between the analysis of the formal characteristics of plants and the spatial qualities of a landscape architectural design. - is able to demonstrate a variety of possible presentation techniques: Experimental drawing and modelling techniques to convey spatial concepts (development of a personal handwriting) Techniques of visualisation and representation; explanatory drawing and modelling techniques related to the scale, texture and materials of the landscape.	
Education Method	Workshop Group work/individual work	
Course Relations	The first quarter of the Master track Landscape Architecture consists of studio (AR1LA010), lecture series (AR1LA020), seminar (AR1LA031) and workshop (AR1LA040). The courses deliver tools and techniques for landscape architectonic research and design. AR1LA040 can only be followed in conjunction with AR1LA010.	
Literature and Study Materials	- Wohrle, R.E. and Wohrle, H.J., (2008) 'Designing with plants'. Basel, Boston, Berlin, Birkhauser. - Mader, G. and L. Neubert-Maber (1996) Baume; Gestaltungsmitel in Garten, Landschaft ind Stadtebou. Stuttgart: Deutsche verlags-Anstalt	
Assessment	The design of a garden(planting plan), where special attention will be given to: -planting arrangements/ atmosphere it creates -variety of species implied in the design -development in time of planting plan -formal plant typology studies as argument for the final design -drawings and model technic implied to express the design	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Quarter	
Leerstoel	Landscape architecture	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1LA050	Dutch Waterscapes: Design of a Leisure Landscape	6
Responsible Instructor	Ir. N.M.J.D. Tillie	
Course Coordinator	Dr.ir. I. Bobbink	
Instructor	J.R.T. van der Velde	
Instructor	Ir. N.M.J.D. Tillie	
Contact Hours / Week x/x/x/x	56 hours per quarter	
Education Period	2	
Start Education	2	
Exam Period	2 3	
Course Language	English	
Expected prior knowledge	Bachelor Bouwkunde Delft and similar. For more information ask the grading committee.	
Summary	Waterscape	
Course Contents	<p>In this quarter students are going to design a leisure landscape, whereby the polder water plays an important role. The assignment, a public landscape, will include the design of a routing, a leisure landscape and a specific outdoor water place.</p> <p>One of the most pressing problems facing the Dutch (urban)landscape at present is the question of fragmentation and disintegration of Delta and the task to modernize the water system for a sustainable future. As landscape architects we think that the solution to many spatial problems lies in the landscape itself; the landscape harbors a wealth of information from which instruments can be developed. By investigating the Dutch landscape from a design point of view, in its specific geographic and cultural context we can recover spatial knowledge and approaches. By transforming this knowledge we learn how to deal with contemporary design issues. The assignment of the public landscape will emphasize the understanding of landscape architecture as idea and as process. You will work on:</p> <ul style="list-style-type: none"> - different scales, through different scales: area of influence, area of effect and area of control - landscape analysis of a landscape entity and its water structure - a composition of a water ensemble or network - a composition of a vegetation/planting ensemble or network - integration of a public space network in the ensemble - design solution of the critical detail(s) - developments of a strategy to carry out the landscape transformation - designing the process of landscape 	
Study Goals	<p>The student</p> <ul style="list-style-type: none"> - can identify and interpret form, construction, functioning and culture of the Dutch water landscape. - can argue and demonstrate the relationship between the analysis and the landscape architectural water design. - has a working understanding of landscape architectural instruments through the scales from ditch to horizon. - has the ability to give a visual and spatial expression to landscape forces like wind, water and earth as part of the leisure programme. - has the ability to integrate landscape engineering techniques and ecological knowledge (planting and water) in the design. - has ability in the mapping of landscapes and landscapes elements. - has ability to create self-explanatory drawings. 	
Education Method	<p>Studiowork in groups and for the main part individual</p> <p>Workshop Excursion Self study</p>	
Computer Use	General knowledge	
Course Relations	<p>all courses in this quarter</p> <p>studio (AR1LA050)</p> <p>lecture series/analyses (AR1LA060)</p> <p>seminar (AR1LA070)</p> <p>workshop (AR1LA080) - fully integrated in the studio (AR1LA050_</p> <p>The courses deliver tools and techniques for landscape architectonic research and design on the scale of the landscape.</p>	
Literature and Study Materials	<p>Overall Quarter MSC1/2</p> <p>The Dutch Lowlands quarter explores landscape as an object and process of collective cultural endeavor. The constructed polder landscape of delta regions, both within and beyond urban areas, are the origin and instrumentation of a unique Dutch landscape architectonic repertoire.</p> <p>The articulation of the latent architectonic form, the renewal of the water management system, and the programmatic transformation of the polder landscape, are central themes of this quarter and are exemplary for worldwide actual topics.</p> <p>- Steenberg C. and Reh W. a.o. 'The polderatlas', THOTH, 2009</p> <p>- Bobbink, I en Loen S. 'Water inSight', PDF, 2013 http://repository.tudelft.nl/view/ir/uuid:e1af985b-7f72-4a55-9c07-2fc0f4c7e4f1/</p> <p>- Wit S. de 'Dutch Lowlands', SUN, 2009</p>	
Assessment	A1 panels- physical models -presentation - written report	
Period of Education	Quarter	
Leerstoel	Landscapearchitecture in collaboration with others.	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1LA060	The Fine Dutch Tradition	3
Responsible Instructor	Ir. N.M.J.D. Tillie	
Course Coordinator	Dr.ir. I. Bobbink	
Instructor	Dr.ir. S.I. de Wit	
Instructor	Dr.ir. I. Bobbink	
Contact Hours / Week x/x/x/x	28 hours per quarter	
Education Period	2	
Start Education	2	
Exam Period	2 3	
Course Language	English	
Expected prior knowledge	Bachelor Bouwkunde Delft and similar. For more information ask the grading committee.	
Summary	To analyse and compare worldwide water designs.	
Course Contents	In the course the development en the role of the water system of the Dutch land-making process and water designs will be discussed and analysed against the background of up-dating land use and the new interrelation of landscape and city.	
Study Goals	In this course you are introduced to the 4-layer design research approach developed by the chair of Landscapearchitecture. You will use this method to understand and analyse waterscapes from all over the world. The emphasis in this course, apart from learning how to analyse, lies on drawing techniques and drawing skills. By learning how to make clear and informative analytical drawings, you will both get a deeper understanding of the landscape architectonic form of the waterscape (as a basis for design), and be able to communicate this understanding.	
Education Method	The student: - identify and explain different water systems with special attention to the surface water. - can understand and apply the Delft 4-layer method of landscape architectonic analysis with special attention on water systems. - identify and explain the formal relationship between landscape and design- draw en formulate research conclusion.	
Course Relations	- group work (2 or 3 students) - group excursion without instructors - listening to lectures and preparing one - analyses following a certain method - individual design experiment	
Literature and Study Materials	The first quarter of the MSC2 consists of studio (AR1LA050), lecture series/analyses (AR1LA060), seminar (AR1LA070) and workshop (AR1LA080). The course delivers tools and techniques for landscape architectonic research and design.	
Assessment	- Bobbink I. and Loen S. 'Water inSight', PDF,2013 http://repository.tudelft.nl/view/ir/uuid:e1af985b-7f72-4a55-9c07-2fc0f4c7e4f1/	
Special Information	- Steenbergen C. a.o. 'Composing Landscapes', Birkhauser, 2008	
Period of Education	lecture and booklet of at least two water designs	
Leerstoel	The maximum marking period is 10 work days.	
Course evaluation	Quarter	
Course evaluation	Landscape Architecture	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1LA070	Reflecting Ideas on Landscape: Paradigms and Positions	3
Responsible Instructor	Ir. N.M.J.D. Tillie	
Course Coordinator	Dr.ir. I. Bobbink	
Instructor	J.R.T. van der Velde	
Instructor	D. Piccinini	
Contact Hours / Week x/x/x/x	28 hours per quarter	
Education Period	2	
Start Education	2	
Exam Period	2 3	
Course Language	English	
Required for	This course only open for LA-students.	
Expected prior knowledge	Bachelor Bouwkunde Delft and similar. For more information ask the grading committee.	
Summary	Seminar	
Course Contents	<p>in this course we zoom out to look at the broader range of attitudes to landscape in contemporary landscape architectural research and practice including:</p> <ul style="list-style-type: none"> - landscape design as three-dimensional spatial construction, - landscape design as site translation, - landscape design as process and - landscape design as programme schema. 	
Study Goals	<p>Reflecting ideas on landscape means close-reading, evaluating the perspective of the author, exploring the key points of contentions and the context, discussing and taking in a position.</p> <p>The themes are: Landscape design as three-dimensional spatial construction, involves the orchestration of the spatial-visual layers composing a landscape architectural project and is aligned to architectonic praxis in that it sees landscape design as a compositional problem. It also involves kinesthetic experience (movement through space) such as the construction of a spatial series along a route.</p> <p>Landscape design as site translation, concerns itself with understandings of site and context such as structures, processes, memories, practices etc. and their translation into new forms and physical manifestations.</p> <p>Landscape design as process focuses on the dynamic nature of landscape and the physical and biotic processes which shape territories. It assumes an open-ended, dynamic form in which the effects of time and nature sets up conditions for future transformations.</p> <p>Landscape design as programme schema privileges the functional aspects of landscape design including social, ecological and recreational aspects.</p>	
Education Method	<p>The student:</p> <ul style="list-style-type: none"> -can identify and explain different ways to study and design landscapes. present/discuss - can logically and critically argue a selected discourse based on key academic literature. - can write a position paper of an academic standard. 	
Literature and Study Materials	<p>The course consists of two parts:</p> <ul style="list-style-type: none"> - close reading and analysis of seminal texts and their presentation/discussion in seminars - the writing of a position paper. 	
Assessment	9 papers, see Quarter Guide	
Special Information	Written report Presentations	
Period of Education	The maximum marking period is 10 work days.	
Leerstoel	Quarter	
Course evaluation	Dutch Lowlands/Waterscapes part of MSC1/2	
	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR1LA080	Landscape Components: Green and Blue	3
Responsible Instructor	Ir. N.M.J.D. Tillie	
Course Coordinator	Dr.ir. I. Bobbink	
Instructor	Ir. N.M.J.D. Tillie	
Instructor	Ir. F.D. van Loon	
Contact Hours / Week x/x/x/x	28 hours per quarter	
Education Period	2	
Start Education	2	
Exam Period	2 3	
Course Language	English	
Expected prior knowledge	Bachelor Bouwkunde Delft and similar. For more information ask the grading committee.	
Summary	The workshop provides ecological and technical insights on landscape architecture and is fully integrated in the studio (AR1LA050).	
Course Contents	<p>In a workshop setting technical and ecological insights of waterscapes will be tested. The workshops are integrated in the theme of the studio (AR1LA050).</p> <p>Workshop 1 How to draw a technical water scheme?</p> <p>Workshop 2 How to investigate and draw an ecological divers water scheme</p> <p>Workshop 3 How to design with the help of natural dynamics?</p> <p>Workshop 4 How to construct a wetland?</p>	
Study Goals	<p>The student:</p> <ul style="list-style-type: none"> - is able to understand and judge the ecological, spatial and visual quality of the water management system. - is able to examine and create new possibilities by building with nature experimenting with wetlands, reed-fields etc., - is able to demonstrate the ecological values by creating physical models and drawing sections. 	
Education Method	lectures group and individual work in the studio experimenting with different drawing and model technics	
Course Relations	<p>The quarter of the MSC1/Q2 consists of studio (AR1LA050), lecture series/analyses (AR1LA060), seminar (AR1LA070) and workshop (AR1LA080).</p> <p>The workshop course is integrated in the studio (AR1LA050).</p> <p>The courses deliver tools and techniques for landscape architectonic research and design.</p>	
Assessment	<ul style="list-style-type: none"> - results (drawings, models etc.)of the workshop - A4 reflection on workshop work 	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Quarter	
Leerstoel	Landscape Architecture	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

Starting Course MSc1

ARX071	Workshops Faculty of Architecture and the Built Environment	1
Responsible Instructor	Dr.ir. R. Cavallo	
Contact Hours / Week x/x/x/x	X / 0 / 0 / 0	
Education Period	1	
Start Education	1	
Exam Period	none	
Course Language	English	
Course Contents	<p>All new MSc students of the Faculty of Architecture and the Built Environment will start the academic year 2018-2019 with a 3-day workshop programme on 30 & 31 August and 3 September 2018.</p> <p>The programme is developed in cooperation with TPM colleagues of the section "Ethics & Philosophy of Technology". With a mix of lectures, workshops and sessions guided by teachers of the faculty, you will be introduced to (design) ethics, scientific integrity and intercultural communication.</p> <p>With these workshops you will make a first start to cover the ethics engineering learning goals of the MSc programmes. Further, we wish to enhance the interaction between all new students, both Dutch and International, and to introduce you to settings, methods and procedures of the faculty.</p> <p>Participation in the workshops is mandatory for all students starting their MSc 1 programme in September.</p>	
Study Goals	- The student has a basic understanding of moral sensibility, moral analysis skills, moral creativity, moral judgement skills, moral decision-making skills and moral argumentation skills.	
Education Method	Lectures, workshops, role playing game, assignment	
Assessment	Workshops attendance Assessment: V (passed) or NV (failed)	
Special Information	<p>The academic year will start with a three day workshop programme. With a mix of lectures, workshops and sessions guided by teachers of the faculty, you will be introduced to (design) ethics, scientific integrity and intercultural communication. With these workshops you will make a first start to cover the ethics engineering learning goals of the MSc programmes. Further, we wish to enhance the interaction between all new students, both Dutch and International, and to introduce you to settings, methods and procedures of the faculty. The workshops will lay the foundation for your master studies. It is highly recommended for both Dutch and International students to participate in this programme and you will be granted 1 EC after following the whole programme. This EC will be used in your electives list Master 2/3.</p> <p>For more information see website: https://www.tudelft.nl/studenten/faculteiten/bk-studentenportal/onderwijs/master-of-science/workshops-master-students/</p>	
Period of Education	3 days	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

MSc 2 Landscape Architecture

AR2LA010	Teatro Urbano: Landscape Architecture Practice in Urban Transformation	6
Responsible Instructor	Ir. F.D. van Loon	
Course Coordinator	Dr.ir. I. Bobbink	
Instructor	Dr.ir. I. Bobbink	
Instructor	Ir. F.D. van Loon	
Contact Hours / Week x/x/x/x	56 hours per quarter	
Education Period	3	
Start Education	3	
Exam Period	3	
	4	
Course Language	English	
Expected prior knowledge	Bachelor Bouwkunde Delft and similar. For more information ask the grading committee.	
Course Contents	In this design studio students work on a comprehensive proposal for an urban territory under transformation, elaborating and integrating two specific dimensions of urban landscape architecture praxis: the city as an earth-life landscape system, and the city as a socio-spatial environment. Specific project outcomes include a strategy addressing the sustainable systemic form and metabolism of the urban-landscape mosaic, and a design proposal for a particular urban landscape component addressing socio-spatial aspects. A third outcome is the development of an integrated approach that links these two realms together. Interventions are also to be developed and tested in terms of their capacity to meet large-scale, long-term goals; how will your design (intervention) change over time and how do you design to catalyse processes within a dynamic scenario for the transformation of the territory?	
Study Goals	<p>The student</p> <ul style="list-style-type: none"> - is able to identify, interpret an urban territory as an earth-life landscape system, using established analytical methods; can identify and interpret an urban territory as a human-social environment, using established analytical methods. - has a working competency in research-by-design techniques investigating transformations of territory. - is able to develop a plausible problematique for an urban territory with respect to its sustainable earth-life and socio-spatial future; - can understand and effectively address earth-life and social-spatial problematique at a strategic/policy level; - is able to resolve and elaborate an urban landscape design (intervention) in spatial, material and technical terms; - can conceptualize and resolve urban design aspects which are inter-related to an urban landscape design (intervention); - is proficient in representation and communication techniques elaborating the (earth-life) systemic and socio-spatial aspects of a project; - is proficient in representation and communication techniques for a (public urban) landscape design project; - is proficient in investigating and representing temporality and process; 	
Education Method	The first phase of the studio is a set of exercises analysing the broader problematique of the site and its context, and includes field trip, survey & analysis. This is followed by further analysis and design research leading to a regional vision and strategy for the territory. Central in this phase is the question of how an ecological and environmental approach can be linked to socio-spatial planning and design. Students then prepare a design intervention for a particular site. Students work individually on this intervention scale, focussing on design-technical resolution and detailing including planting, surface design, water, elements structures and lighting. In this phase the interventions are also to be developed and tested in terms of their dynamics and capacity to meet large-scale, long-term goals.	
Course Relations	Urban landscape is one of four core foci of Landscape Architecture at the TU Delft. It deals with the architectonic, technical, topographical, spatial, programmatic and visual relationship between city and landscape. The quarter also explores the form and representation of nature in the city, and the relationship between public open spaces and collectivity, civic life and urban culture. The concept urban landscape includes the architectonic constructed spaces within of the city, the architectonic expression of the underlying landscape structure which supports urban form and the open-space structure which surrounds and penetrates cities. The man-made landscape edging the urban realm and the interstitial spaces between cities is also included in the concept urban landscape. The quarter consists of design project, lecture series, seminars and workshops.	
Literature and Study Materials		
Assessment	<p>Project in which the following competencies are assessed:</p> <ul style="list-style-type: none"> Development of a Territorial Problematique 40% Planning & Design proposal for the territory 40% Presentation & Communication of proposal 20% 	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Quarter	
Leerstoel	Landscape Architecture	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR2LA020	Urban Landscapes in History and Thought	3
Responsible Instructor	Ir. F.D. van Loon	
Course Coordinator	Dr.ir. I. Bobbink	
Instructor	J.R.T. van der Velde	
Contact Hours / Week x/x/x/x	28 hours per quarter	
Education Period	3	
Start Education	3	
Exam Period	3 4	
Course Language	English	
Expected prior knowledge	Bachelor Bouwkunde Delft and similar. For more information ask the grading committee.	
Course Contents	Different historical periods, cultural and political contexts, geographical features and critical projects have influenced the complex relationship between city and landscape, culture and nature. The spectrum of theories, concepts, approaches and projects on this topic forms the backdrop for urban landscape architecture as a practical and theoretical discipline, and is the focus of this lecture series. The lectures are divided into three framing lenses: cultivated nature, urban landscape patterns and strategies, and urban landscape as system & process. Each lens is delivered in two consecutive double lectures, the first covering historical and theoretical aspects, the second focussing on contemporary concepts and approaches within that lens.	
Study Goals	The student - can identify and discuss emerging theoretical discourses on understanding, ordering and acting in urban territories from a from the perspective of Nature and Landscape (Architecturale) perspective. - can logically and critically analyse a contemporary urban project from the perspective of these discourses. - can write a plan critique paper of an academic standard.	
Education Method	Lectures, discussions & essay-writing	
Assessment	Writing of a Plan Critique demonstrating competency in the following: - Demonstration of a basic knowledge of seminal urban landscape projects in the three themes; - Demonstration of knowledge of historical and contemporary themes and paradigms within these three lenses; - Ability to position new concepts and projects within the context of the three lenses of urban landscape architecture and reflect on them; - Ability to distil (design) tools and insights from a contemporary urban landscape project;	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Quarter	
Leerstoel	Landscape Architecture	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR2LA030	Urban Landscape Systems, Typologies and Strategies	3
Responsible Instructor	Ir. F.D. van Loon	
Course Coordinator	Dr.ir. I. Bobbink	
Instructor	Dr.ir. S.I. de Wit	
Instructor	D. Piccinini	
Contact Hours / Week x/x/x/x	28 hours per quarter	
Education Period	3	
Start Education	3	
Exam Period	3 4	
Course Language	English	
Summary	This course will introduce and explain the basic concepts of urban green planning and explain how they have been applied on various scales.	
Course Contents	Planning of urban green spaces plays an important role in the spatial development of cities and has a positive effect on the quality of life in urban environments. The way the green space system is embedded in the urban context plays in many situations a crucial role for the success of public green spaces. This course will introduce and explain the basic concepts of urban green planning and explain how they have been applied on various scales. In addition, the evaluation and assessment of green spaces is an integral part of contemporary planning practice. The course will thus also provide information about landscape indicators and their use for the evaluation and assessment of green spaces in urban contexts.	
Study Goals	<p>Students:</p> <ul style="list-style-type: none"> - can analyse and represent a regional urban landscape system and its components and prepare an appropriate plan for the spatial development of an urban region, which displays moral analytical skills; - understands the theoretical and methodological basics of scenarios in planning praxis, can apply them to a given urban territory, and can critically and ethically reflect on the results in relation to territorial transformations; - is proficient in the use of indicators to assess public open spaces and can prepare quantitative and ethically sound guidelines for a set of amenities for a given urban district. 	
Education Method	Seminars (presentations and discussion) & exercises	
Literature and Study Materials		
Assessment	Assignments	
Special Information	The maximum marking period is 10 work days.	
Period of Education	quarter	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR2LA040	Engineering and Technology in Urban Landscape Design	3
Responsible Instructor	Ir. F.D. van Loon	
Course Coordinator	Dr.ir. I. Bobbink	
Instructor	Dr.ir. I. Bobbink	
Instructor	Ir. F.D. van Loon	
Contact Hours / Week x/x/x/x	28 hours per quarter	
Education Period	3	
Start Education	3	
Exam Period	3 4	
Course Language	English	
Expected prior knowledge	Bachelor Bouwkunde Delft and similar. for more information ask the grading committee.	
Course Contents	This course focuses on knowledge and skills in engineering and construction in urban landscapes. it consists of lectures by academics and professionals covering water and soil mechanics, hard-scapes, planting, ecology and micro-climate aspects. Knowledge delivered in the lectures is applied in workshops and in the design studio project.	
Study Goals	<p>Student:</p> <ul style="list-style-type: none"> - can understand and assess the city as a territorial environment involving interrelated systems/elements namely: water, ecology, climate, (sub)surface and plants; - can recognize the relationship between natural conditions, technological potential and spatial opportunities in urban transformations, and synergize these aspects in an urban landscape plan; - can and resolve an urban landscape detail to meet basic technical and sustainable criteria; 	
Education Method	Lectures, Seminars, Workshops & Fieldtrips	
Assessment	<p>exercises and tests assessing:</p> <ul style="list-style-type: none"> - Subject knowledge and insight - Research and analyses skills - Experimentation/conceptual capacity - Technical competence - Exploration capacities 	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Quarter	
Leerstoel	Landscape Architecture	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

15 EC of electives

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

MSc 3 Landscape Architecture

AR3LA020	Research Methodology in Landscape Architecture	5
Responsible Instructor	Dr.ir. I. Bobbink	
Course Coordinator	Dr.ir. I. Bobbink	
Instructor	Dr.ing. S. Nijhuis	
Contact Hours / Week x/x/x/x	45 hours per quarter	
Education Period	1 3	
Start Education	1 3	
Exam Period	1 2 3 4	
Course Language	English	
Summary	The course provides students with academic knowledge and skills in order to conduct and understand science based research and design in landscape architecture. The course explores basic research issues and concepts, as well as specific strategies for research and design in the urban landscape and focuses on research methodology and criteria. The course aims at building a research framework for the graduation studio.	
Course Contents	<p>Alongside design craftsmanship which is also about communication, reflection and negotiation through design academic skills for design research are an important factor in landscape architecture as a practical science. This course aims to provide the students with (a) important theoretical and practical clues for developing a critical academic attitude towards research and design in landscape architecture, and (b) in-depth understanding of important theories, methods and techniques in the field, with the focus on research methodology. On one hand it provides some specific methods and techniques for landscape architectonic research and design, and on the other, it provides backgrounds on general scientific research tools and criteria. In this respect the course contributes to the development of a research framework for the graduation studio.</p> <p>The course is organised around three themes: (1) Landscape architecture as a practical science, (2) Design thinking in landscape architecture and (3) Attitudes in landscape architectonic research and design. In Landscape architecture as a practical science students will get to know general academic perspectives, critical thinking and case-study research. In Design thinking in landscape architecture the design process, creative thinking and design research will be elaborated. Attitudes in landscape architectonic research and design addresses fundamental methods and techniques for research and design. It considers landscape as a living system (process), as a scale continuum (context), as a 3D-environment (space) and/or as a palimpsest (history).</p> <p>The course consists of a lecture series, a seminar methodology in landscape architectonic research and design, and writing a research paper. The lecture series puts forward different influential practitioners and researchers who exemplify a certain attitude towards research and design of the landscape. During the seminar different seminal texts (books and articles) in contemporary theory and practice of landscape research and design will be studied. It delivers material that can be discussed in the group and helps to develop an individual, and knowledge based attitude towards landscape architecture. Finally every student has to deliver a research paper reflecting in-depth understanding, critical reflection and scientific attitude towards theory in landscape architecture. This paper aims to provide a first research outline for the graduation project.</p>	
Study Goals	<p>The student is able to:</p> <ul style="list-style-type: none"> - identify landscape architecture as an academic design discipline with its own theories, methods and techniques; - compare and discuss different landscape architecture design-related research strategies and principles of study and practice; - select and use suitable design-related research strategies and techniques in a particular context; - design a research framework for their graduation project; - write a methodology paper reflecting in-depth understanding, critical reflection and academic attitude. 	
Education Method	<p>Lecture-series The lecture series puts forward different influential practitioners and researchers who exemplify a certain attitude towards research and design of the landscape. The lecture series is obligatory and serves as input to the seminar.</p> <p>Seminar As scheduled there will be a thematic session of three verbal presentations. Three groups of two students will prepare a verbal presentation of 10-15 minutes addressing the assigned text. During the presentation the text will be summarised, analysed, discussed and illustrated with examples (i.e. exemplary landscape designs). Two other students will be asked to ask questions and give a critical reflection.</p> <p>Research paper Finally, every student is asked to write a research paper of at least 2000 words which reflects an in-depth understanding and critical attitude towards theory, methods and techniques in landscape architecture and provides clues for the graduation project.</p>	
Literature and Study Materials	- Nijhuis, S., 'Research methodology in landscape architecture', 2011, (provided)	
Assessment	paper	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Quarter	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR3LA031	Graduation Studio Landscape Architecture: Flowscapes	20
Responsible Instructor	Dr.ir. I. Bobbink	
Course Coordinator	Dr.ir. I. Bobbink	
Instructor	Dr.ir. S.I. de Wit	
Instructor	Ir. G.A. Verschuure-Stuip	
Instructor	J.R.T. van der Velde	
Instructor	Ir. N.M.J.D. Tillie	
Instructor	Dr.ir. I. Bobbink	
Instructor	Dr.ing. S. Nijhuis	
Instructor	D. Piccinini	
Instructor	Ir. F.D. van Loon	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Summary	<p>The landscape architecture graduation studio explores spatial, societal and environmental issues through the application of design research and research-by-design, understanding the urban landscape as scale-continuum, spatial-visual structure, history (palimpsest) and social and natural process. The core of the studio is formed by knowledge acquisition, strategy development and design exploration of landscape compositions and systems in the built environment with particular interest in their spatial, temporal and material dimensions. The central theme is Flowscapes: designing landscape as infrastructure addressing landscape architecture design of green, water and transport landscape infrastructures as armatures for spatial development. The studio focusses on specific context-related design projects, in which knowledge from spatial design, ecology, civil engineering and social sciences is synthesised into coherent multi-scale design proposals.</p>	
Course Contents	<p>Social, cultural and technological developments of our society are demanding a fundamental review of the planning and design of its landscapes, in particular in relation to environmental issues and sustainability. Urbanization, ecological crisis and climate change are international problems; while the technical challenges may be considerable, the spatial and cultural challenges are by far the largest. Therefore a renewed understanding of space-time condition of landscape and its potential for change offers promising opportunities to find new solutions to these problems.</p> <p>In this changing context the landscape architecture graduation studio focusses on strategy development and design exploration of landscape compositions and systems in the built environment. The emphasis is on the design of new topographies to create conditions for spatial development by employing landscape-based approaches, ecosystem services and landscape architecture design principles. Here landscape design is considered as synthesising activity that explores the dynamic between structure and process in various natural, cultural and urban settings, taking the specifics of the place (genius loci) as a starting point. By combining theoretical and functional knowledge, and by combining several scales and disciplines in a stimulating learning environment, the studio aims to prepare future generations of landscape architects for world-wide challenges related to the urban landscape.</p> <p>The central theme of the studio is Flowscapes: designing landscape as infrastructure addressing landscape architecture design of green, water and transport landscape infrastructures. The studio explores urban landscape infrastructures as a design concept, considering them as armatures for urban development and for facilitating functional, social and ecological interactions. It seeks to redefine infrastructural landscape design as an interdisciplinary design effort to establish a local identity through tangible relationships to a place or region. In this process visual thinking and communication are considered to be crucial. Drawings, mappings and models are used to reveal and create relationships, explore and elaborate landscape systems (in terms of geometry, quantity, velocity, force, trajectory) and for critical reflection.</p> <p>The student can define its own project/case study or choose from a given set of case-studies in consultation with the mentor team. Consequently the student will elaborate this case study consistently by design research and research by design addressing all relevant scale-levels involving aesthetic, functional, social and ecological aspects of the landscape involved. The accompanying courses Research methodology and Space and Society will assist students to develop their skills and attitude in theory, methods and techniques in landscape architecture.</p>	
Study Goals	<p>The student is able to:</p> <ul style="list-style-type: none"> - select and use suitable design-related research strategies and techniques in a particular context; - determine and design landscape architecture strategies and spatial design interventions at multiple scales, which meet aesthetic, technical, ecological and functional requirements as proof of their academic knowledge; - integrate knowledge from other design disciplines and scientific fields. - write a report of an academic standard including method, theory, research, design and is able to reflect on the work in a morally sound manner. - is able to present the work by combining oral, written and graphical media 	
Education Method	<ul style="list-style-type: none"> - division in LAB's (different research themes) - Studio meetings - Interdisciplinary lectures, seminars and workshops - Writing - Fieldwork 	
Literature and Study Materials	Please check the semester guide.	
Assessment	<ul style="list-style-type: none"> - Products of Design Research and Research-by-Design (as defined in semester book) - Written report - Oral presentation 	
Period of Education	Semester	
Leerstoel	Landscape Architecture	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR3LA040	Space and Society	5
Responsible Instructor	Dr.ir. I. Bobbink	
Course Coordinator	Dr.ir. I. Bobbink	
Instructor	Dr.ir. M.J. van Dorst	
Contact Hours / Week x/x/x/x	45 hours per quarter	
Education Period	2	
Start Education	4	
Exam Period	2	
	3	
	4	
	5	
Course Language	English	
Summary	There are different perspectives on the use of the living environment; these are determined by the different disciplines in people-environment studies and by the type of environment.	
	People and places touch upon four relations between people and their environment and on specialities in these fields.	
Course Contents	There are different perspectives on the use of the living environment; these are determined by the different disciplines in people-environment studies and by the type of environment.	
	People and places touch upon four relations between people and their environment and on specialities in these fields.	
	The four discourses are:	
	Environmental psychology	
	Environment-behaviour relations, perception and cognitions and facilitating primary needs (the work of Gifford, Lynch, Alexander).	
	Environmental sociology	
	Social behaviour in the public realm (the work of Jacobs, Gehl).	
	Environmental philosophy	
	Influence of culture on the physical environment and visa versa (the work of Heidegger, Lemaire).	
	Interaction design	
	Community design, city gaming and other forms of co-creating with inhabitants.	
	The four discourses will be underpinned with literature and there will be practical examples of specialisations in the societal design:	
	- Lifestyle design; differences between inhabitants, visitors and people passing-by	
	- Child friendly cities	
	- Social Safety design	
	- Territorial behaviour of people in public space	
	- Collective management; maintaining a shared space	
	- Wayfinding and other examples	
Study Goals	The student:	
	- identify and compare with various disciplinary perspectives on designed landscapes in people-environment studies.	
	- can discuss and reflect on designed landscapes as a setting and product of individuals, communities and societies.	
	- can develop and assess a landscape design assignment from an environmental ethics perspective, focusing on moral responsibility towards the natural world.	
	- can apply people-environment methods in a designed landscape assignment.	
Education Method	Theory and examples will be presented in lectures and practiced in fieldwork. The total course is 5 credits, both elements are of the same weight.	
	The lecture series is 8 times 2 hours on the different discourses and examples. Students will do literature research on an specialisation within societal design that is not presented. They write an individual essay to contribute to the body of knowledge of this course (4 A4).	
	The fieldwork starts with an introduction on behaviour observations and a group excursion in the public space of Delft. Examples of the theory will be explained in the public space of Delft. In a next step students will analyse (in small groups) a specific place in Delft on environmental behaviour interactions. Every group will design an intervention to influence these interactions, build it and test in reality. Every group will present their results in a short movie.	
Assessment	written examen	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Quarter	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

MSc 4 Landscape Architecture

AR4LA010	Graduation Studio Landscape Architecture: Flowscales	30
Responsible Instructor	Dr.ir. I. Bobbink	
Course Coordinator	Dr.ir. I. Bobbink	
Instructor	Dr.ir. S.I. de Wit	
Instructor	Ir. G.A. Verschuure-Stuip	
Instructor	J.R.T. van der Velde	
Instructor	Ir. N.M.J.D. Tillie	
Instructor	Dr.ir. I. Bobbink	
Instructor	Dr.ing. S. Nijhuis	
Instructor	D. Piccinini	
Instructor	Ir. F.D. van Loon	
Contact Hours / Week x/x/x/x	135 hours per semester	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Summary	The landscape architecture graduation studio explores spatial, societal and environmental issues through the application of design research and research-by-design, understanding the urban landscape as scale-continuum, spatial-visual structure, history (palimpsest) and social and natural process. The core of the studio is formed by knowledge acquisition, strategy development and design exploration of landscape compositions and systems in the built environment with particular interest in their spatial, temporal and material dimensions. The central theme is Flowscales: designing landscape as infrastructure addressing landscape architecture design of green, water and transport landscape infrastructures as armatures for spatial development. The studio focusses on specific context-related design projects, in which knowledge from spatial design, ecology, civil engineering and social sciences is synthesised into coherent multi-scale design proposals.	
Course Contents	<p>Social, cultural and technological developments of our society are demanding a fundamental review of the planning and design of its landscapes, in particular in relation to environmental issues and sustainability. Urbanization, ecological crisis and climate change are international problems; while the technical challenges may be considerable, the spatial and cultural challenges are by far the largest. Therefore a renewed understanding of space-time condition of landscape and its potential for change offers promising opportunities to find new solutions to these problems.</p> <p>In this changing context the landscape architecture graduation studio focusses on strategy development and design exploration of landscape compositions and systems in the built environment. The emphasis is on the design of new topographies to create conditions for spatial development by employing landscape-based approaches, ecosystem services and landscape architecture design principles. Here landscape design is considered as synthesising activity that explores the dynamic between structure and process in various natural, cultural and urban settings, taking the specifics of the place (genius loci) as a starting point. By combining theoretical and functional knowledge, and by combining several scales and disciplines in a stimulating learning environment, the studio aims to prepare future generations of landscape architects for world-wide challenges related to the urban landscape.</p> <p>The central theme of the studio is Flowscales: designing landscape as infrastructure addressing landscape architecture design of green, water and transport landscape infrastructures. The studio explores urban landscape infrastructures as a design concept, considering them as armatures for urban development and for facilitating functional, social and ecological interactions. It seeks to redefine infrastructural landscape design as an interdisciplinary design effort to establish a local identity through tangible relationships to a place or region. In this process visual thinking and communication are considered to be crucial. Drawings, mappings and models are used to reveal and create relationships, explore and elaborate landscape systems (in terms of geometry, quantity, velocity, force, trajectory) and for critical reflection.</p> <p>The student can define its own project/case study or choose from a given set of case-studies in consultation with the mentor team. Consequently the student will elaborate this case study consistently by design research and research by design addressing all relevant scale-levels involving aesthetic, functional, social and ecological aspects of the landscape involved. The accompanying courses Research methodology and Space and Society will assist students to develop their skills and attitude in theory, methods and techniques in landscape architecture.</p>	
Study Goals	<p>The student is able to:</p> <ul style="list-style-type: none"> - select and use suitable design-related research strategies and techniques in a particular context; - determine and design landscape architecture strategies and spatial design interventions at multiple scales, which meet aesthetic, technical, ecological and functional requirements as proof of their academic knowledge; - integrate knowledge from other design disciplines and scientific fields; - is able to present the work by combining oral, written and graphical media; - write a report of an academic standard including method, theory, research, design and is able to reflect on the work in a morally sound manner. 	
Education Method	<p>studio meetings interdisciplinary lectures, seminars and workshops poster presentation on the research topic workshops fieldwork</p>	
Assessment	<ul style="list-style-type: none"> - Products of Design Research and Research-by-Design (as defined in semester book) - Written report - Oral presentation 	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

variant Urbanism

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

MSc 1 Urbanism

ARIU090	R&D Studio: Analysis and Design of Urban Form	10
Responsible Instructor	Ir. E.M. Bet	
Responsible Instructor	Ir. K.P.M. Aalbers	
Responsible Instructor	Ir. T. Bouma	
Course Coordinator	Ir. E.M. Bet	
Course Coordinator	Ir. T. Bouma	
Instructor	Ir. T. Bouma	
Instructor	Ir. K.P.M. Aalbers	
Instructor	Ir. E.M. Bet	
Contact Hours / Week	12/0/0/0	
x/x/x/x		
Education Period	1	
Start Education	1	
Exam Period	none	
Course Language	English	
Summary	<p>To deal and design with the growing complexity of a city requires good understanding of the basic structure and key urban elements, and the ways they work.</p> <p>City Portraits - the first design studio of the Urbanism master track - aims to develop students critical reading and understanding of urban structure, form and functioning at different scales. By a sequence of analysis and design exercises students will get familiar with the urban design language and the key structural components and fabrics of a city.</p> <p>In the Design Studio 4 guiding themes will be used:</p> <ul style="list-style-type: none"> * urban typo-morphology; * urbanized landscapes; * the idea of the open city; * cities as complex systems. <p>These perspectives on the design of the city will be introduced and discussed in the lectures and workshops on History and Theory of Urbanism (ARIU121). The content of the lectures is crucial input for the work in the Design Studio.</p> <p>By making analytical and conceptual maps, drawings and models, by comparing, combining, analyzing and discussing them students will learn:</p> <ul style="list-style-type: none"> * to relate multiple scales and layers; * to switch swiftly between design and analysis; * to experiment with various city concepts; * to use analysis as a design tool; * to conceptualize and design a serie of city portraits; * to conceptualize the idea of the city; * to structure the relations between diagnosis, vision, and interventions. <p>Students will build a body of knowledge by searching, selecting and using a wide variety of sources and by reflecting their work to a theoretical framework in Urban Design. Students will be able to point out which urban elements and structures had, have and could have an influential role in the urban development. Students will discover the structural song lines of the city, but also the ruptures, discontinuities and dynamics. During the entire studio they will use the developed drawing, modeling techniques to communicate their conclusions and to explore and develop their vision on the future potential of this city, including long-term developments and short-term interventions.</p>	
Course Contents	<p>City Portraits, Analysis and Design of City Form. Content of Q1:</p> <ul style="list-style-type: none"> * Design Studio; * Workshops; * Lectures. <p>All information is available in the Quarter Guide available on Bright Space.</p> <p>In this studio students will analyze and compare the structure, form and space of 3 different middle scale Dutch cities. Students work in small groups with 1 tutor. 3-4 students will work on one city. The whole group of 10-12 students will cover the 3 cities. Each student will work individually on an atlas and on the design of portraits of one of the 3 cities. In the making of the atlas and portraits students will analyze and experiment in a designerly way; thinking, sketching, modeling and drawing through different scales, functions and layers and from different perspectives.</p> <p>Students will be supported in this by a studio tutor and with workshops in drawing, law, mapping and modeling and storyboard. Students will learn of their own development during the studio and of the comparison and inspiration of the work of other students.</p> <p>The individual research and design assignment in this quarter is supported by lectures, debates and workshops. Input from the lectures will be tested and questioned in the debates with fellow students and results in an acceleration of the individual research and design work.</p> <p>The different products the students deliver (atlas, portraits, exhibition) require different working attitudes. The different forms of education activate the learning process and will lift the level of knowledge, skills and academic attitude.</p>	
Study Goals	<p>The student is able to:</p> <ul style="list-style-type: none"> * to recognize and understand the structural and spatial components of a city; * to conceptualize and shape the idea of the city in models and drawings; * to test and show the effects of structural interventions on multiple scales and layers; * to use analysis and experiment as a design tool; * to structure and shape a narrative on the actual condition and future potential of a city; * to build a body of knowledge by searching, selecting and using a wide variety of sources and by reflecting their work to a theoretical framework in Urban Design; * to point out which urban elements and structures had, have and could have an influential role in the urban (re)development; * to explore and develop their vision on the actual condition and future potential of this city. 	
Education Method	<p>The individual research and design assignment in this quarter is supported by a studio tutor in the studio sessions. A field trip in the selected town is part of the research. Input from the lectures and readings will be tested and questioned in the weekly debates with fellow students and results in an acceleration of the individual research and design work. Workshops in conceptual drawing and modeling, planning law implementation and making a storyboard will give specific training. Students will learn of their own development during the studio and of the comparison and inspiration of the work of other students. The different products students will deliver (atlas, portraits, essay, exhibition) require different working attitudes. The different forms of education activate the learning process and will lift the level of knowledge, skills and academic attitude.</p>	

Literature and Study Materials	Mandatory and recommended literature will be mentioned in the quarter guide or on the specific Bright Space page.
Assessment	<p>An elaborated Atlas of the city, which contains the analytical and experimental drawings accompanied with explanatory texts. In the atlas students combine the gained knowledge into clear and transferable concepts. A City Portrait, which shows the interpretation and synthesis of the cities condition. Students can place this portrait in the present (like a diagnosis) or in the future (as a wish or probability).</p> <p>Atlas and portrait are presented in:</p> <ul style="list-style-type: none"> * Booklet (hardcopy and .pdf); * 2 A1 presentation posters; * Models. <p>A final Exhibition will show a selection of the different atlases and portraits per city. It will show a broad, investigative and inspiring range of readings of the cities.</p> <p>A rubric will be used for grading. The rubric will be available in the quarter guide or on the course specific Bright Space page.</p>
Remarks	The maximum marking period is 15 work days.
Period of Education	Quarter
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/

ARIU100	R&D Studio: Designing Urban Environments	10
Responsible Instructor	Prof.ir. R.J. Dijkstra	
Responsible Instructor	Ir. K.P.M. Aalbers	
Responsible Instructor	Dr.ir. F.D. van der Hoeven	
Course Coordinator	Dr.ir. F.D. van der Hoeven	
Instructor	Dr.ir. F.D. van der Hoeven	
Instructor	Ir. K.P.M. Aalbers	
Contact Hours / Week	0/12/0/0	
Education Period	2	
Start Education	2	
Exam Period	none	
Course Language	English	
Summary	<p>The R&D studio in this quarter is about designing sustainable urban environments. Students work on an individual project, focussing on a specific city in the Netherlands. The focus is on the street and neighbourhood scale, in the context of the city. Special attention is given to the relation between design and engineering (parallel course ARIU131), while taking the social and economic feasibility into account. The goal is to improve the performance of the urban environment by developing a vision, project, strategy and evaluation framework.</p>	
Course Contents	<p>The Department of Urbanism specialises in future-oriented action and thinking on the sustainable development of urban landscapes, responding to the needs of the society, by developing and combining theories, methods and techniques of spatial planning and design (Mission statement Department of Urbanism, 2015).</p>	
Course Contents	<p>The 2nd quarter of the 1st semester focusses on the human scale in urban design and engineering, and aims to contribute to a sustainable development and transformation of the urban environment. In the first quarter a city has been analysed from four different themes: (1) typo-morphology, (2) urban landscape, (3) open space and (4) the city as a complex system. In the second quarter focusses on integrating social and environmental dimensions, while the economic dimension is included in evaluating the proposal. The overall goal is to improve the performance of the urban environment by developing a vision, project, strategy and evaluation framework.</p>	
Course Contents	<p>This quarter is organised around three dimensions of sustainable development. By proposing changes in the urban fabric, the aim is to improve the (1) social, (2) environmental and (3) economic dimensions of urban environments. The assignment in this quarter focusses on integrating social and environmental dimensions, while the economic dimension is included in evaluating the proposal. It emphasises the human scale: focusing on the street and neighbourhood scale, in the context of the city as a whole.</p>	
Course Contents	<p>This quarter emphasizes (1) a comprehensive understanding of sustainable development consisting of social, environmental and economic dimensions; (2) the ability to integrate design and engineering, while taking the socio-economic feasibility into account; (3) skills in communication, representation, and observation. During the R&D studio Designing Urban Environments students use this knowledge and skills to develop an urban design proposal.</p>	
Study Goals	<p>The student is able to explain:</p> <ul style="list-style-type: none"> * sustainable development as a complex multidimensional-multiscale process consisting of social, environmental, and economic dimensions on street-, neighbourhood- and city-scale; * human dimensions in urban design related to urban design thinking, environmental psychology and urban complexity; * the characteristics of natural and human systems on both the surface and subsurface level; * contemporary urban transformation practices in a Dutch context. <p>The student is able to analyse:</p> <ul style="list-style-type: none"> * the urban environment from an urban landscape, typo-morphological and open space perspective; * the social and environmental dimensions on the street and neighbourhood scale, in the context of the city; * the synergy between natural and human systems on the surface and subsurface level; * the socio-spatial-environmental performance of the urban environment in terms of health, control, legibility and safety. <p>The student is able to design:</p> <ul style="list-style-type: none"> * a system public spaces, by combining design and engineering, including natural and human systems on the surface and subsurface level; * an urban project based on a vision: on the street- and neighbourhood-scale in the context of the city, supported by these patterns; * a strategy to implement the urban project, including its socio-economic feasibility; * a context specific sustainability framework to evaluate the overall performance of the proposal, in terms of health, control, legibility and safety. <p>The student is able to evaluate:</p> <ul style="list-style-type: none"> * the socio-economic feasibility of the proposal. <p>The student is able to demonstrate:</p> <ul style="list-style-type: none"> *skills in writing, drawing and calculating as a means to generate design ideas and concepts; * skills in observing human behaviour and the construction of the urban environment; * skills in reporting and presenting to communicate to a variety of audiences. 	
Education Method	<p>Studio; Lectures; Instructions.</p>	
Literature and Study Materials	<p>Mandatory and recommended literature will be mentioned in the quarter guide or on the specific Bright Space page.</p>	
Assessment	<p>A rubric will be used for grading. The rubric will be available in the quarter guide or on the course specific Bright Space page.</p>	
Remarks	<p>The maximum marking period is 15 work days.</p>	
Period of Education	<p>Quarter</p>	
Course evaluation	<p>For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/</p>	

AR1U121	History and Theory of Urbanism	5
Responsible Instructor	Ir. K.P.M. Aalbers	
Responsible Instructor	Dipl.ing. B. Hausleitner	
Responsible Instructor	Dr.ir. T. Kuzniecowa Bacchin	
Responsible Instructor	Dr. C. Wagenaar	
Course Coordinator	Dipl.ing. B. Hausleitner	
Instructor	Dr. C. Wagenaar	
Instructor	Dipl.ing. B. Hausleitner	
Instructor	Dr.ir. T. Kuzniecowa Bacchin	
Instructor	Ir. K.P.M. Aalbers	
Contact Hours / Week x/x/x/x	4/0/0/0	
Education Period	1	
Start Education	1	
Exam Period	none	
Course Language	English	
Summary	<p>The course gives an overview of the body of knowledge of urbanism. Combining the history of the discipline of urbanism, urban history and the theoretical concepts that are part of this body of knowledge, it focuses on a) the historical evolution of the discipline as the result of interactive processes between the professionals themselves, politicians, administrators, clients, entrepreneurs, public institutions, b) concrete urban plans and designs - often, but not always, condensed in urban patterns - and the way they came into being, and c) key theoretical concepts.</p> <p>The course will focus on the history of urbanism in the Netherlands during the 19th and 20th century, and the way how this history is related with a changing world in economic, social, political and technical terms.</p>	
Course Contents	<p>A lecture series on History of practice of urban design and urban planning, with a focus on the great design-experiments in the western (European and American) world during the 19th and 20th century and on History of theory of urbanism, with a focus on the important manifestos, handbooks and theoretical reflections on urbanism during the 19th and 20th century.</p> <p>The aim of the course is:</p> <ul style="list-style-type: none"> * to foster awareness of the disciplines intrinsically historical nature, the evolution of which is motivated by concepts, interpretations, interactions with social, economic, technological, geological and geographical processes; * to teach the students how to assess the historical background of urban plans and designs from different historical periods; * to enable students to identify and explain urban patterns in terms of their original intentions, the relationship between urbanism and its clients, their composition, their separate components (streets, squares, field), the relations and differences between urbanism on other disciplines like architecture, and geography; * to provide students with the tools to evaluate the theoretical concepts underlying urban interventions, the evolution of the discipline in terms of the goals it sets itself and the relationship with their clients, and their - alleged - impact on various urban patterns; * to introduce the students in the art of writing about their discipline, urban phenomena, design- and planning proposals and theories. 	
Study Goals	<p>The student:</p> <ul style="list-style-type: none"> * Has knowledge of the historic and theoretical fundamentals of the discipline of Urbanism; * Is able to position historic urban designs and theories, and to relate them to the specific societal context of a historic period; * Is able to take a critical position concerning different design- and planning experiments and theories of Urbanism, based upon knowledge and arguments; * Is able to position his/her own opinions, designs and plans in relation to the history and theory of Urbanism. 	
Education Method	Lectures once a week.	
Literature and Study Materials	Mandatory and recommended literature will be mentioned in the quarter guide or on the specific Bright Space page.	
Assessment	<p>Essay of approximately 3000 words, which addresses a relevant issue for the discipline of urbanism of today.</p> <p>The essay should describe the historic evolution of this issue: how urbanists considered this (or similar) issue in previous times. It should describe which theories and concepts are developed during the years, and in what sense these theories are still or not anymore relevant for present-day urbanism.</p> <p>The essay should be related to the individual design project of AR1U100.</p>	
Special Information	A rubric will be used for grading. The rubric will be available in the quarter guide or on the course specific Bright Space page.	
Period of Education	Quarter	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

ARIU131	Sustainable Urban Engineering of Territory	5
Responsible Instructor	Dr. F.L. Hooimeijer	
Responsible Instructor	Prof.ir. R.J. Dijkstra	
Responsible Instructor	Ir. K.P.M. Aalbers	
Course Coordinator	Dr. F.L. Hooimeijer	
Instructor	Ir. K.P.M. Aalbers	
Instructor	Dr. F.L. Hooimeijer	
Contact Hours / Week x/x/x/x	0/4/0/0	
Education Period	2	
Start Education	2	
Exam Period	none	
Course Language	English	
Summary	<p>This quarter focusses on the making or remaking of the city and this course more specially on the city as technical construction: the natural and man-made conditions of the urban landscape, in order to integrate all interest in an urban plan. The act of integration and design requires systemic knowledge on a wide range of subjects. In this course the city is seen as a technical construction, with the central question being how to reconnect this construction to the natural systems of the territory? Therefore, this course provides vital input for the parallel studio of ARIU100.</p>	
Course Contents	<p>In the master track Urbanism students learn to integrate social, cultural, economic and political perspectives with the natural and man-made conditions of an urban landscape in order to shape and plan for more sustainable urban development. This quarter focusses on the making or remaking of the city and this course more specially on the city as technical construction: the natural and man-made conditions of the urban landscape, in order to integrate all interest in an urban plan. The act of integration and design requires systemic knowledge on a wide range of subjects. In the course the city is seen as a technical construction, with the central question being how to reconnect this construction to the natural systems of the territory?</p> <p>In new to build areas, or green fields, there is a lot of freedom to engineer or not to engineer the natural system. One of the greatest urban challenges these days is urban renewal. This is a complex enterprise in itself because you deal with the existing urban use and fabric. On top of that we need to deal with trends like climate change and the energy transition. One dimension that is reintroduced in the urban project is the subsurface system, which plays a crucial role in water management, ecology and energy supply. The subsurface system was for a long time excluded from the urban planning and design process, because it was considered a technical aspect that was dealt with by civil engineers, not as part of the urban design. However, the subsurface sets the conditions with highest impact: it is more costly and takes more time to change a cable system than it is to build a building or construct a road. Especially the idea that the natural system has already been altered for urban use, and thus lost, is preventing innovative solutions that deal with climate change and the energy transition in urban renewal. In order to incorporate natural and technical conditions in urban plans, a better cooperation with civil engineers and a better understanding of what they do not know is crucial for urban designers. This is what the course aims at.</p> <p>To bring order in all the technical information we make use of the System Exploration Environment and Subsurface (SEES) that uses six functional layers with different dynamics, professional domains and knowledge fields: people, metabolism, occupation, public space, infrastructure and subsurface. The subsurface layer is ordered in (for the urban planner and designer) recognizable themes: water, energy, civil constructions and subsoil. Within the themes there is a logical order in the qualities of the subsurface (www.ruimtexmilieu.nl). SEES connects the subsurface information with the urban surface in order to inspire and set clear boundaries for the development of the urban surface. It is used for analysing potential problems, chances, demands and supports a creative interaction early in the process of urban planning.</p>	
Study Goals	<p>Students are able to:</p> <ul style="list-style-type: none"> Explain what for them is sustainable development and how technology is integrated Evaluate the skills of an urban designer in relation to sustainability; Explain the city as a hybrid system of natural and human characteristics both the surface and subsurface level; Analyse the synergy between natural and human systems on the surface and subsurface level; Identify new approaches in which the conditions and chances that are given by the natural system are re-introduced; Demonstrate and design spatial principles or an urban ensemble with the desired performances, by combining design and engineering, including natural and human systems on the surface and subsurface level to develop ethical standards considering sustainable development. 	
Education Method	The course programme consists of lectures and workshops.	
Literature and Study Materials	Mandatory and recommended literature will be mentioned in the quarter guide or on the Bright Space page.	
Assessment	A rubric will be used for grading. The rubric will be available in the quarter guide or on the course specific Bright Space page.	
Special Information	The maximum marking period is 15 work days.	
Period of Education	Quarter	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

Starting Course MSc1

ARX071	Workshops Faculty of Architecture and the Built Environment	1
Responsible Instructor	Dr.ir. R. Cavallo	
Contact Hours / Week x/x/x/x	X / 0 / 0 / 0	
Education Period	1	
Start Education	1	
Exam Period	none	
Course Language	English	
Course Contents	<p>All new MSc students of the Faculty of Architecture and the Built Environment will start the academic year 2018-2019 with a 3-day workshop programme on 30 & 31 August and 3 September 2018.</p> <p>The programme is developed in cooperation with TPM colleagues of the section "Ethics & Philosophy of Technology". With a mix of lectures, workshops and sessions guided by teachers of the faculty, you will be introduced to (design) ethics, scientific integrity and intercultural communication.</p> <p>With these workshops you will make a first start to cover the ethics engineering learning goals of the MSc programmes. Further, we wish to enhance the interaction between all new students, both Dutch and International, and to introduce you to settings, methods and procedures of the faculty.</p> <p>Participation in the workshops is mandatory for all students starting their MSc 1 programme in September.</p>	
Study Goals	- The student has a basic understanding of moral sensibility, moral analysis skills, moral creativity, moral judgement skills, moral decision-making skills and moral argumentation skills.	
Education Method	Lectures, workshops, role playing game, assignment	
Assessment	Workshops attendance Assessment: V (passed) or NV (failed)	
Special Information	<p>The academic year will start with a three day workshop programme. With a mix of lectures, workshops and sessions guided by teachers of the faculty, you will be introduced to (design) ethics, scientific integrity and intercultural communication. With these workshops you will make a first start to cover the ethics engineering learning goals of the MSc programmes. Further, we wish to enhance the interaction between all new students, both Dutch and International, and to introduce you to settings, methods and procedures of the faculty. The workshops will lay the foundation for your master studies. It is highly recommended for both Dutch and International students to participate in this programme and you will be granted 1 EC after following the whole programme. This EC will be used in your electives list Master 2/3.</p> <p>For more information see website: https://www.tudelft.nl/studenten/faculteiten/bk-studentenportal/onderwijs/master-of-science/workshops-master-students/</p>	
Period of Education	3 days	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

MSc 2 Urbanism

AR2U086	R&D Studio: Spatial Strategies for the Global Metropolis	10
Responsible Instructor	Ir. K.P.M. Aalbers	
Responsible Instructor	Prof. V. Nadin	
Responsible Instructor	Ir. V.E. Balz	
Responsible Instructor	L. Qu	
Course Coordinator	L. Qu	
Instructor	L. Qu	
Instructor	Ir. V.E. Balz	
Instructor	Ir. K.P.M. Aalbers	
Contact Hours / Week x/x/x/x	0/0/12/0	
Education Period	3	
Start Education	3	
Exam Period	none	
Course Language	English	
Summary	Regional design is the core assignment of the R&D studio in this quarter. Students work in groups on regional analysis and design for a self-defined goal in the framework of sustainable development, focusing on a metropolitan region in the Netherlands. The rationale behind this assignment is the fact that the way global economic powers influence social, cultural and environmental development is best sensible at the regional level. Such global influence results in the inability to fully control spatial development. In this sense, regional design is seen as a tool for steering development in the right direction, which -as the exploration of plausible futures- promotes and debates solutions to problems in a given context. It is a reflection on prevailing spatial conditions, political agendas and planning regimes, meant to improve good (democratic) decision-making and to inform long-term strategic planning approaches to desirable spatial change.	
Course Contents	<p>This quarter emphasizes on (1) a comprehensive, evidence-informed understanding of regional spatial structures and development trends, (2) an understanding of interrelations among design, planning and politics and (3) communication skills that are required in collaborative decisionmaking. During the R&D studio 'Spatial Strategies for the Global Metropolis' students use this knowledge and skills to conduct a regional design. The design process knows two products, notably (1) a spatial vision and (2) a development strategy. Products are interrelated. The vision represents a desirable spatial future; it serves as a guiding normative principle for the development strategy that sets out a path towards spatial change, by means of spatial interventions that are ordered over a time and associated with capacities of actors in development.</p> <p>The R&D studio 'Spatial Strategies for the Global Metropolis' is the core activity of this quarter. Students conduct a regional design in groups of 4-5 students. The thematic exercises of Spatial Development Strategies (SDS) are an integral part of the studio. Knowledge on regional design and planning approaches will be provided during lectures and applied during workshops. SDS assists in and steers studio work. The series Debating Strategic Spatial Planning also adds to the studio. It provides students with knowledge about spatial planning and discusses relations between planning, governance and design on these grounds. Parallel to the R&D studio runs the course 'Research & Design Methodology for Urbanism'. The course focuses on a theoretical understanding of design, planning and research. Students learn to position their work in a theoretical debate and write a report on these grounds.</p>	
Study Goals	<p>The student is able to:</p> <ul style="list-style-type: none"> * Understand the basic roles and instruments of strategic spatial planning in delivering public good, spatial quality and equality and sustainable regional spatial development. * Understand the complexity, multiscalarity and uncertainty of regional spatial development; can consider the limitations that these conditions set to regional planning and design. * Understand and critically reflect on roles and impacts of regional design in/on inclusive planning decision-making. * Formulate and argue for a comprehensive regional vision, drawing on commonly shared values and norms, evident regional spatial development and appropriate planning principles. * Convert a vision into a regional development strategy that is relevant and feasible in a given institutional context and robust in respect to uncertainties of long-term regional development; can estimate a fair distribution of costs and benefits among stakeholders involved. * Justify a vision and development strategy conceptually, making use of theoretical notions and an understanding of how theory and practice interact. * Use communication media that are effective in collaborative decision-making (visualize design proposals clearly, consistently and persuasively, using images and text); can engage in critical debate. * Explain the ethical issues involved in the activity of planning and designing for people. 	
Education Method	Studio sessions twice a week on Tuesday and Friday, SDS lectures/workshops and Capita Selecta lectures.	
Literature and Study Materials	Mandatory and recommended literature will be mentioned in the quarter guide or on the specific Bright Space page.	
Assessment	A rubric will be used for grading. The rubric will be available in the quarter guide or on the course specific Bright Space page.	
Period of Education	Quarter	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR2U088	Research & Design Methodology for Urbanism	5
Responsible Instructor	Ir. K.P.M. Aalbers	
Responsible Instructor	R.C. Rocco de Campos Pereira	
Responsible Instructor	Prof. V. Nadin	
Course Coordinator	R.C. Rocco de Campos Pereira	
Course Coordinator	Ir. V.E. Balz	
Course Coordinator	L. Qu	
Instructor	Ir. K.P.M. Aalbers	
Instructor	R.C. Rocco de Campos Pereira	
Contact Hours / Week x/x/x/x	0/0/4/0	
Education Period	3	
Start Education	3	
Exam Period	none	
Course Language	English	
Required for	This course is MANDATORY if you wish to graduate in Urbanism. Without this grade, you cannot enrol for P2 in your MSC3.	
Expected prior knowledge	For all students in Q3 Urbanism: Basic academic writing skills and basic research skills are desirable.	
Summary	This course enables you to do academic research that will support and fundament your work in the parallel AR2U86 studio and in the Master 3 and 4 graduation project.	
Course Contents	<p>The component Methodology for Urbanism runs parallel to the studio. It is one of the core elements of the semester. It enables you to do academic research that will support and fundament your work in the studio. This is different to the studio because here you will concentrate on traditional forms of academic research, which you will connect to less traditional forms of research, like research by design. This connection between traditional and non-traditional (design-based) forms of research is one of the characteristics of education and research in the Department of Urbanism of the TU Delft. The methodology component will help you*:</p> <ul style="list-style-type: none"> * EXPLAIN what a theoretical framework is; * BUILD a theoretical framework that will sustain your research and design in Q3; * IDENTIFY a community of authors and practitioners who write about the core ideas of your theoretical framework; * WRITE an academic report, in which you will describe what are the main questions you will seek to answer in Q3 and the best methods to answer them; * EXPLAIN the values connected to and the ethical issues involved in the activity of planning and designing for people. <p>Being able to formulate your own problem statement, research questions and methodology is one of the goals of the Urbanism Master. The theoretical framework is the foundation on which the whole research and design are based. There is nothing as practical as a good theory. This is because a theory is a knowledge framework, around which you can build your own ideas, be inventive and innovative. Understanding what theories, ideas and practices exist will help you be even more innovative and groundbreaking (because you will not be reinventing the wheel).</p> <p>*Those are our learning objectives summarized.</p> <p>The guiding concepts underlying this course are:</p> <ul style="list-style-type: none"> * Urbanism is a trans-disciplinary field of study and practice and there are different logics of enquiry involved belonging to the human sciences, to the physical sciences and to design. These logics of enquiry conceive questions and methods differently. It is necessary to clarify these different logics of enquiry, their different questions and methods, and how they can work together, in order to be able to do research in Urbanism. * The model of knowledge-building used in this course is communicative/ inter-subjective. We assume that all knowledge is constructed inter-subjectively. Knowledge needs to be communicated in order to be validated, tested, and integrated in existing knowledge. Hence the emphasis on communication. * There are different ways to achieve knowledge and students and teachers need to discuss and clarify which ones are valid, relevant, ethical and effective for Urbanism. For instance, there are different ways to do research in design-based practice: how to connect design research with other (more academic) ways of doing research? <p>Pedagogical goals: The course aims to promote:</p> <ul style="list-style-type: none"> * Acquisition of knowledge on basic concepts of philosophy of science; * Development of critical and analytical skills; * Development of argumentation skills; * Clarity in presentation and communication of design and research; * Excellence in writing and communication skills. 	
Study Goals	<p>The student is able to:</p> <ul style="list-style-type: none"> * EXPLAIN what a theoretical framework is; * BUILD a theoretical framework that will sustain your research and design in Q3; * IDENTIFY a community of authors and practitioners who write about the core ideas of your theoretical framework; * WRITE an academic report, in which you will describe what are the main questions you will seek to answer in Q3 and the best methods to answer them; * EXPLAIN the values connected to and the ethical issues involved in the activity of planning and designing for people, thus: explain what ethics in Urbanism is, explain some of the ethical challenges connected to the practice of urbanism, describe different frameworks to understand ethical issues and articulate his or her position towards specific ethical issues connected to Q3. 	
Education Method	<p>Workshops and lectures This (education) happens (our teaching styles and techniques):</p> <ul style="list-style-type: none"> * by discussing the role of theories for design and planning practice; * by clarifying the ways in which theories are translated into practice in different domains (notably in the social sciences, in the physical sciences and in the design and planning practices); * by clarifying the role and the importance of design for planning practices and vice-versa and; * by promoting active engagement of students in discussions, simulations and role playing games. 	
Literature and Study Materials	Mandatory and recommended literature will be mentioned in the quarter guide or on the specific Bright Space page.	
Assessment	A rubric will be used for grading. The rubric will be available in the quarter guide or on the course specific Bright Space page.	
Special Information	The maximum marking period is 15 work days.	
Period of Education	Quarter	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

Urbanism, Free electives 15 ECTS

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

MSc 3 Urbanism

AR3U013	Analytical methods of urban planning and design	4
Responsible Instructor	Ir. K.P.M. Aalbers	
Responsible Instructor	Dr. L.M. Calabrese	
Course Coordinator	Dr. L.M. Calabrese	
Instructor	K.P.M. Aalbers	
Instructor	Dr. L.M. Calabrese	
Instructor	Dr. L.M. Calabrese	
Instructor	Dr. S.A. Read	
Instructor	Dr.ir. S.C. van der Spek	
Instructor	Ir. L.P.J. van den Burg	
Instructor	Dr.ir. G. Bracken	
Instructor	Dipl.ing. U.D. Hackauf	
Instructor	Dr. D.A. Sepulveda Carmona	
Instructor	Dr. D. Stead	
Instructor	Q. Lei	
Instructor	Dr. M.M. Dabrowski	
Contact Hours / Week x/x/x/x	4/4/4/4	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Summary	This course aims to support students elaborating a methodological framework for their graduation project in the areas of Urban planning and Urban design.	
Course Contents	The course aims to support students elaborating a methodological framework for their graduation project in the areas of Urban planning and Urban design. Designing a research Master Thesis project, applying an appropriate research method and demonstrating reasonable and convincing results belong to the designerly way of thinking. The course is aimed to situate Urban Planning and Urban Design research within a larger intellectual framework through grasping the indissoluble connection between the development process of ideas and artefacts. The course will therefore be commenced with a review on the development of design methodology as the point of departure. The course deals with the variety of methods to carry out research in Urban Planning and Urban Design by acknowledging that there are different value systems in the several fields of Urbanism and by exploring the various approaches used to define, research and answer relevant questions for the discipline. Urbanism, as it is taught at the TU Delft, is about evidence-based/ theory-supported design craftsmanship, but also about communication, reflection and negotiation through strategic planning and design. The course aims at teaching students how to critically select the most appropriate research methods and tools for their thesis and to organize them in a solid methodological framework, which together with the theoretical framework form the scientific base of their thesis. The course meets the need to create a solid academic foundation of the Masters in the Urbanism programme of the TU Delft, with respect to established academic standards in dialogue with Urban Planning and Urban Design practice.	
Study Goals	<p>The student:</p> <ul style="list-style-type: none"> * Is able to conduct and to evolve a design/research project; * Shows systematic problem finding and problem analysis; * Is able to elaborate problem analysis with references to an appropriate theoretical framework into a well articulated problem statement leading to a relevant and concise set of research questions; * Selects and applies appropriate methods and techniques of design and research in a coherent and systematic way: data collecting and data analysis, desk research etc.; * Displays critical thinking, writing and reviewing of literature and urban design in real practice; * Shows sound academic writing skills; * shows social awareness and professional responsibility. 	
Education Method	Lectures, seminars, workshops and peer reviews. Students are required to actively participate to all activities in the program.	
Literature and Study Materials	Mandatory and recommended literature will be mentioned in the quarter guide or on the specific Bright Space page.	
Assessment	<p>The deliverable for this course is a paper (3000 words) on the methodological framework of the Master thesis, which will be presented as a chapter of the Master thesis.</p> <p>At P1 students will submit an abstract (500 words) of the paper. At P2 students will submit the final paper (3000 words + relevant images). The final assessment and grading will take place at P2.</p> <p>P1. Guidelines for the abstract. The abstract should include the following sections: Motivation: Why do we care about the problem and the results? If the problem isn't obviously "interesting" it might be better to put motivation first; but if your work is incremental progress on a problem that is widely recognized as important, then it is probably better to put the problem statement first to indicate which piece of the larger problem you are breaking off to work on (focus). This section should include the relevance of your research, the difficulty of the area, and the impact it might have. Problem statement: What problem are you trying to solve? What is the scope of your work (a generalized approach, or for a specific situation)? Be careful not to use too much jargon. In some cases, it is appropriate to put the problem statement before the motivation, but usually this only works if most readers already understand why the problem is important. Research question: What is the main research question? What are the sub-research questions? Approach: How are you planning to approach and make progress on the problem? What methods and tools are you planning to use and why? How do these methods and tools relate to each other and to the research question? Expected Results: What is the expected output of your research? Conclusions: Do you expect your results to be potentially generalizable, or specific to a particular case?</p>	

P2. Guidelines for the paper.

The paper should include:

Abstract (300- 500 words);

An analysis of the context resulting in an understanding of the main problem to be tackled;

Problem definition resulting in a problem statement;

A main research question or design objective derived from the problem statement and a set of sub-research questions that complement and help explain the main one/ OR a set of research question that will support the investigation of solutions to attain the design objective;

Intended research approach, including a detailed description of the methods and techniques necessary to answer the research questions;

Elaboration on how the different methods and tools relate to each other within the scope of the thesis;

Societal and scientific relevance of the study + considerations on possible ethical issues (both resulting from the conduction of the research and from the implementation of designs);

Relevant bibliography.

The course staff will review, provide feedback and grade the deliverable based on the following criteria:

1. Structure of the paper on the Methodological Framework;

2. The exercise of critical and analytical skills;

3. Sustained and coherent argumentation;

4. Clarity in presentation and communication;

5. Originality/ possible contribution to the existing body of knowledge;

6. Feasibility of the study within the field of Urbanism and in the framework of a one-year graduation programme.

A rubric will be used for grading. The rubric will be available in the semester guide or on the course specific Bright Space page.

The maximum marking period is 15 work days.

Special Information

Period of Education

Semester

Course evaluation

For the course evaluations see: <http://kwaliteitszorg.bk.tudelft.nl/>

AR3U023	Theories of urban planning and design	4
Responsible Instructor	Ir. K.P.M. Aalbers	
Responsible Instructor	Dr.ir. G. Bracken	
Responsible Instructor	Dr. S.A. Read	
Course Coordinator	Dr. S.A. Read	
Course Coordinator	Dr.ir. G. Bracken	
Instructor	Dr.ir. F.D. van der Hoeven	
Instructor	Dr. S.A. Read	
Instructor	Dr. A. Romein	
Instructor	Dr. A. van Nes	
Instructor	Ir. G.A. Verschuure-Stuip	
Instructor	RC Rocco	
Instructor	Dr.ir. G. Bracken	
Instructor	Dipl.ing. B. Hausleitner	
Instructor	Ir. M. Lub	
Instructor	Dr.ir. T. Kuzniecowa Bacchin	
Instructor	Ir. V.E. Balz	
Instructor	Dr. A. Arjomand Kermani	
Instructor	Ir. K.P.M. Aalbers	
Instructor	Dr. D.A. Sepulveda Carmona	
Instructor	Dr. D.A. Sepulveda Carmona	
Instructor	Dr.ir. M.M.E. Pijpers-Esch	
Instructor	Dr. D. Stead	
Instructor	Dr. F.L. Hooimeijer	
Instructor	Y. Song	
Contact Hours / Week	4/4/4/4	
x/x/x/x		
Education Period	1	
	2	
	3	
	4	
Start Education	1	
	3	
Exam Period	none	
Course Language	English	
Summary	This course supports master 3 students in their graduation project by focussing on the literature related to theories in the field of urbanism and on the critical use of that literature to develop a review of or position on the theories concerned.	
Course Contents	This course focuses on the literature related to theories in the field of urbanism and on the critical use of that literature to develop a review of or position on the theories concerned. Students will present this review or position in the form of an academic paper. They will demonstrate in this way their command of the knowledge field of their graduation theme/topic and that they are able to relate urban theory to their graduation topic and use it to inform their graduation project.	
Study Goals	The student will:	
	attend lectures, do literature study and discuss with course staff and graduation studio first mentors;	
	write an academic paper as part of the process of building a theoretical position for his / her graduation project;	
	review selected literature or argue a position in relation to the literature and graduation objectives and present this in the form of an academic paper of 3000 words;	
	outline a comprehensive overview of the theoretical scope of the project. Deliver a review, position or argumentation paper that deals in depth with an aspect of the project;	
	do research that is useful for the graduation project and demonstrates skills of researching and academic writing.	
Education Method	A number of small exercises in seminar setting on urban theory and academic writing:	
	* how to develop a theoretical underpinning for my project in urbanism;	
	* how to look for scientific literature relevant for a graduation project;	
	* how to use these references in written documents;	
	* how to critically assess scientific literature;	
	* how to relate urban theory to a graduation project in urban design and planning;	
	* how to write a paper abstract;	
	* how to write a review paper.	
Literature and Study Materials	Mandatory and recommended literature will be mentioned in the quarter guide or on the specific Bright Space page.	
Assessment	The deliverable for this course is a review paper on theories in the field of urbanism related to the urban theory of the graduation topic.	
	The paper will be presented as a chapter of the Master thesis.	
	Prior to P1 students will submit a paper abstract.	
	Prior to P2 students will submit the final review paper.	
	The final assessment and grading will take place at P2.	
	The assessment criteria for the paper are:	
	* the command of and grasp of the literature;	
	* the clarity of the introduction;	
	* the relevance for the graduation project;	
	* the adequacy of analysis and synthesis;	
	* the use of references;	
	* the clarity of the conclusions;	
	* the clarity of presentation/organisation (writing style, structure, graphics).	
	A rubric will be used for grading. The rubric will be available in the semester guide or on the course specific Bright Space page.	

Special Information	The maximum marking period is 15 work days.
Period of Education	Semester
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/

AR3U040	Graduation Orientation	2
Responsible Instructor	Ir. K.P.M. Aalbers	
Responsible Instructor	Dr.ir. R.M. Rooij	
Course Coordinator	Dr.ir. R.M. Rooij	
Instructor	Dr.ir. R.M. Rooij	
Instructor	Ir. K.P.M. Aalbers	
Contact Hours / Week x/x/x/x	2/0/2/0	
Education Period	1 3	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Summary	Within this Graduation Orientation course, students will connect their graduation project research to the main research questions of the (cross-cutting) themes of the Urbanism research programme.	
Course Contents	Within the Graduation Orientation course, students will connect their graduation project research to the main research questions of the (cross-cutting) themes of the Urbanism research programme. Within the Laboratory Urban Transformations and Sustainability and according to their topic of interest, the students will be assigned to work with the research groups in studios where they will work closely with researchers specialized in their specific topic. The research groups -- Complex Cities, Transitional Territories (before: Delta Urbanism), History and Heritage, Urban Fabrics, Urban Metabolism, Design as Politics -- will offer different studio topics every year.	
Study Goals	The student: - develops a broad view of the different disciplines and themes in the Urbanism research field, and is able to state his/hers own position within it; - has knowledge of the general content of the Urbanism research program, and the specific content of the research theme connected to the studio of his/her choice; - is able to provide clear arguments of the connection between his/her own graduation topic and the Urbanism research program.	
Education Method	Seminars: At the beginning of the quarter giving the students an overview of the research work in this field and explaining the Urbanism research program, studio set up and possible subjects / topics, And later providing the student with feedback on his/her graduation topic and the relation between his/her graduation topic and the studio(s) of his/her choice.	
Literature and Study Materials	Mandatory and recommended literature will be mentioned in the quarter guide or on the specific Bright Space page.	
Assessment	A miniposter indicating the preliminary graduation project title, 1 or 2 illustrations / visualisations, preliminary key words, possible location(s), a number of relevant scientific resources in relation to the suggested theme, a brief description indicating the relation to the preferred research group / studio and an interpretation of the relation with the Urbanism research program. This miniposter will be included in the thesis report (from P2 and onwards) and this assignment should help set up the content page of the thesis report. A rubric will be used for grading. The rubric will be available in the semester guide on the course specific Bright Space page.	
Special Information	The maximum marking period is 15 work days.	
Period of Education	Quarter	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR3U100	Graduation LAB: Urban Transformations & Sustainability	20
Responsible Instructor	M.J. Emmerik	
Responsible Instructor	Ir. K.P.M. Aalbers	
Responsible Instructor	Dr. D.A. Sepulveda Carmona	
Responsible Instructor	Dipl.ing. U.D. Hackauf	
Responsible Instructor	Dipl.ing. B. Hausleitner	
Responsible Instructor	Dr.ir. T. Kuzniecowa Bacchin	
Responsible Instructor	Ir. V.E. Balz	
Responsible Instructor	Ir. G.A. Verschuure-Stuip	
Course Coordinator	Ir. K.P.M. Aalbers	
Course Coordinator	Dr. D.A. Sepulveda Carmona	
Instructor	Ir. K.P.M. Aalbers	
Instructor	Dr. D.A. Sepulveda Carmona	
Contact Hours / Week x/x/x/x	X/X/X/X	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Summary	The second year of the Master Urbanism programme consists of two semesters, Master 3 (30 credits) and Master 4 (30 credits), both completely dedicated to the graduation project. This course is the first part of the graduation laboratory; students start developing (individually) their graduation project.	
Course Contents	The second year of the Master Urbanism programme consists of two semesters, Master 3 (30 credits) and Master 4 (30 credits), both completely dedicated to the graduation project. They give the student therefore a unique opportunity to do an in-depth research and design project in the field of urbanism. This course is the first part of the graduation laboratory; students start developing (individually) their graduation project. After getting to know the main Urbanism research topics and research questions, the students will work in content-driven studios with specialized researchers. These studios provide activities for the students, such as lectures, peer review sessions, master classes dedicated to improve students skills (such as GIS, GPS tracking, making a poster, visualisation, other methods, etc.) and lectures, symposiums and workshops organised by students themselves according to their own interests.	
Study Goals	The student: * is able to describe and map the problem field of his graduation work on the basis of a motive, fascination, or question (Problem field); * is able to define a relevant field of graduation objectives, concerning research questions and design tasks (Field of graduation objectives); * is able to define an approach, with specific methods, techniques and design instruments for the graduation work (design and research), based on the results of the Master 3 AR3U013 course, which suits the objectives, the design task and the research questions. (Approach); * is able to present a consistent and adequately constructed theoretical framework for the graduation topic, based on the results of the Master 3 course AR3U023 (Theoretical framework); * is able to define and describe the project location and design task, together with an urban analysis, in line with the formulated problem field (Design and research location); * is able to define the in-between and end products appropriate for the aim of the graduation project (In-between and end products); * is able to put forward arguments on how the graduation work will provide a substantial contribution to society and science (Relevance); * is able to present a first concept or hypothesis, in which a first solution or direction for the design task or the main question is embedded (Concept); * is able to provide the agreed time frame with the formulated in-between and end products (Planning). See the assessment criteria of the 'Graduation Criteria Urbanism P1/P2' of the master track of Urbanism.	
Education Method	In the first quarter, and according to their topic of interest, students will be assigned to work with the research groups in studios where they will work closely with researchers specialized in their specific topic. Students will choose their first mentor from this research group / studio, and a second mentor from a different section. The research groups are Complex Cities, Transitional Territories (before: Delta Urbanism), History and Heritage, Urban Fabrics, Urban Metabolism, Design as Politics.	
Literature and Study Materials	Mandatory and recommended literature will be mentioned in the course guide, on the course specific Bright Space page and by the studio coordinator and mentors.	
Assessment	The assessment is imbedded in the 'Graduation Regulations' of the Faculty of Architecture, Urbanism and Building Sciences. In this course the project is evaluated two times: * at the first Evaluation: Compulsory Progress Review (P1) * at the second Evaluation: Formal Assessment (P2) A rubric (EMMA) will be used for grading.	
Special Information	The maximum marking period is 15 work days. On set conditions, Urbanism students have the possibility to carry out their graduation research project at a company. Students who wish to do so are required to sign a standard internship agreement in advance, including a research proposal which has been approved by the main mentor. Additional conditions and requirements are stipulated in the internship agreement (master) which can be found at http://studenten.tudelft.nl/en/students/faculty-specific/architecture/forms/ . The agreements can be signed at the secretariat of Education and Student Affairs.	
Remarks	The final product of this course is the still growing thesis report, an integral product that the student has to deliver at the end of Master 3, well before the P2 presentation, which contains the assignments of AR3U040, AR3U013 and AR3U023 as recognisable chapters / paragraphs. See the 'Graduation Regulations' of the Faculty of Architecture, Urbanism and Building Sciences and the assessment criteria of the 'Graduation Criteria Urbanism P1/P2' of the Master track of Urbanism.	

Period of Education	Semester
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

MSc 4 Urbanism

AR4U010	Graduation Lab: Urban Transformations & Sustainability	30
Responsible Instructor	M.J. Emmerik	
Responsible Instructor	Ir. K.P.M. Aalbers	
Responsible Instructor	Dr. D.A. Sepulveda Carmona	
Responsible Instructor	Dipl.ing. U.D. Hackauf	
Responsible Instructor	Dipl.ing. B. Hausleitner	
Responsible Instructor	Dr.ir. T. Kuzniecowa Bacchin	
Responsible Instructor	Ir. V.E. Balz	
Responsible Instructor	Ir. G.A. Verschuure-Stuip	
Course Coordinator	Ir. K.P.M. Aalbers	
Course Coordinator	Dr. D.A. Sepulveda Carmona	
Instructor	Ir. K.P.M. Aalbers	
Instructor	Dr. D.A. Sepulveda Carmona	
Contact Hours / Week	X/X/X/X	
x/x/x/x		
Education Period	1	
	2	
	3	
	4	
Start Education	1	
	2	
	3	
	4	
Exam Period	none	
Course Language	English	
Expected prior knowledge	Master 1, Master 2 and Master 3 Urbanism.	
Summary	The second year of the Master Urbanism programme consists of two semesters, Master 3 (30 credits) and Master 4 (30 credits), both completely dedicated to the graduation project.	
	This course is the second part of the graduation laboratory; students continue developing (individually) their graduation project that was approved at the end of the previous semester.	
Course Contents	The second year of the Master Urbanism programme consists of two semesters, Master 3 (30 credits) and Master 4 (30 credits), both completely dedicated to the graduation project. They give the student therefore a unique opportunity to do an in-depth research and design project in the field of urbanism.	
	This course is the second part of the graduation laboratory; students continue developing (individually) their graduation project that was approved at the end of the previous semester.	
Study Goals	The student:	
	* is able to describe and carry out research in the field of urbanism and process the research results as well as use drawings/maps/graphics as a means to research;	
	* is able to describe the problem field of the selected topic and translate it into a field of graduation objectives (and design task) with associated research questions and research approach;	
	* is able to describe a clear theoretical framework which is appropriate for the selected topic;	
	* is able to carry out research by design in a methodological way focused on the research questions;	
	* is able to process the research results in the final report adequately: i.e. formulated and/or imagined by means of analytical drawing(s);	
	* is able to use drawings / maps / graphics as a means to research;	
	* is able to define urban design methods, choices, aspects, effects and consequences by means of plan forms and design-instruments;	
	* is able to define and visualised the own working method(s) and the (design) choices within the design process with sound arguments;	
	* is able to define the spatial, functional, technical, and/or social aspects of the design adequately: clear, transparent and with a proper justification;	
	* is able to use plan forms and design-instruments which suit his/her design task;	
	* is able to describe, imagined and justified the effects and consequences of the design proposal(s) with respect to the aimed field;	
	* is able to draw conclusions and define recommendations;	
	* is able to evaluate the urban design and research aims in the conclusions;	
	* is able to indicate clearly and logically which research questions are answered and how that has been processed in the urban design;	
	* is able to define clear, concrete, specific recommendations based on the results of the urban research and/or design;	
	* is able to specify for which questions is still additional (design) research necessary;	
	* is able to show an analytical capacity to present a complex matter in a brief and concise way;	
	* is able to describe the projects relevance, reflect on the products and present these;	
	* is able to describe clearly the innovative (scientific and/or social) insights of the graduation project in text and images and, if necessary, concrete strategies and/or application possibilities for the field of the urbanism;	
	* is able to position the own graduation project with respect to the field of the urbanism, as well as other adjacent scientific fields;	
	* is able to discuss and present the thesis products (urban design & research) and the process (design & research) in the form of an epilogue or evaluation.	
	In short, the student has to show that he/she is able to deliver a project of professional quality and of academic level in line with the end terms of the master track.	
Education Method	Students work individually, supervised by two mentors, and within the frame of the research group / studio and graduation lab of Urbanism.	
	Meetings and lectures are less frequent than in the previous semester.	
Literature and Study Materials	Mandatory and recommended literature will be mentioned in the course guide, on the course specific Bright Space page and by the studio coordinator and mentors.	
Assessment	The assessment is imbedded in the 'Graduation Regulations' of the Faculty of Architecture, Urbanism and Building Sciences.	
	In this course the project is evaluated three more times:	
	* at the third Evaluation: Compulsory Progress Review (P3)	
	* at the fourth Evaluation: Formal Assessment (P4)	
	* at the final Evaluation: Public Final Presentation (P5)	

Special Information	<p>A rubric (EMMA) will be used for grading.</p> <p>The maximum marking period is 15 work days.</p> <p>On set conditions, Urbanism students have the possibility to carry out their graduation research project at a company. Students who wish to do so are required to sign a standard internship agreement in advance, including a research proposal which has been approved by the main mentor. Additional conditions and requirements are stipulated in the internship agreement (master) which can be found at http://studenten.tudelft.nl/en/students/faculty-specific/architecture/forms/. The agreements can be signed at the secretariat of Education and Student Affairs.</p>
Remarks	<p>The final product of this course is an integral product that the student has to deliver at the end of Master 4, well before the P5 presentation, which contains the assignments of AR3U040, AR3U013 and AR3U023 as recognisable chapters / paragraphs.</p> <p>See the 'Graduation Regulations' of the Faculty of Architecture, Urbanism and Building Sciences, the 'Exit Qualifications' of the master Architecture, Urbanism and Building Sciences and the evaluation form 'Graduation Criteria Urbanism P3' and the assessment criteria of the 'Graduation Criteria Urbanism P4/P5' of the Master track of Urbanism.</p>
Period of Education	<p>AR3U100 starts in period 1 and 3. The AR4U010 course starts after finishing the AR3U100 course</p>
Course evaluation	<p>For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/</p>

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

Explore Lab

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

MSc 3 Explore

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

Compulsory for A students

AR3EX320	Research Explore Lab	12
Responsible Instructor	Ir. R.R.J. van de Pas	
Responsible Instructor	Dr.ir. M.C. Stellingwerff	
Responsible Instructor	Ir. E.J.G.C. van Dooren	
Course Coordinator	Ir. R.R.J. van de Pas	
Contact Hours / Week x/x/x/x	X/X/X/X	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Course Contents	Research driven graduation-laboratory for exploration of fascinations in the profession of building sciences.	
	<p>Explore Lab is an exceptional thesis laboratory for students with a unique fascination which cannot be explored in any of the regular thesis labs. This opportunity is only for highly motivated students with an obsessive interest in a specific question and an exceptional ability to lead themselves and others in theoretical and design research. Explore lab is open for students from all tracks, including free (theoretical) master. While engaged in their own fascinations, the explorers work together to design their own curriculum including workshops, lectures, excursions and visiting critics. Unique fascinations require unique mentor teams explorers select their mentors under the guidance of the lab coordinators.</p> <p>The Explore Lab was originally a student initiative. The first Explore Lab started in September 2005. Each couple of years we have an alumni day. We then invite our alumni because we are very much interested to know how our students are doing in practice. We like to see Explore Lab students as a big family.</p> <p>This course embodies the research component of the Explore Lab graduation studio. The research to be carried out will be complementary to the students graduation project, and both will derive from the students individual fascinations. The research will produce a stand alone product. Rather than merely supporting the design of the thesis project, this research product must deliver findings which are of use to others, students, professionals or researchers.</p>	
Study Goals	<p>The student:</p> <ul style="list-style-type: none"> - can formulate a research project, including research goals, research question and sub-questions, - can choose an appropriate research method, and develop the methodology for their specific research project, - can carry out a substantial research project and present research results in a manner appropriate to the form of research. 	
Education Method	Students work largely independently to develop a research project and carry it out. A mentor will be assigned to guide the student in this process.	
Assessment	The assessment will be of the research product and process. The students is free to determine the nature of the research product in discussion with their mentors.	
Special Information	The maximum marking period is 10 work days.	
	For enrolment please contact coordinator, Roel van de Pas (R.R.J.vandePas@tudelft.nl).	
Period of Education	Semester	
Minimum aantal deelnemers	1	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

Compulsory for BT students

AR3B011	EARTHY	15
Responsible Instructor	Prof.dr.ir. I.S. Sariyildiz	
Course Coordinator	Dr.ir. P. Nourian	
Instructor	Dr.ir. F.A. Veer	
Instructor	Ir. D.R. Visser	
Instructor	Dr. S. Asut	
Education Period	1	
Start Education	1	
Exam Period	none	
Course Language	English	
Expected prior knowledge	A basic knowledge of Computer Aided Design and Finite Element Analysis is expected.	
	Building Technology students are expected to have passed MSc1 Bucky Lab and MSc2 EXTREME or MEGA (or approved equivalent) before enrolling for EARTHY. Building Technology students are advised to have completed two elective courses (2 x 6 ECTS) of Technoledge (Structural Design, Façade Design, Climate Design or Computational Design) in the first quarter of the MSc2.	
Parts	The Earthy Studio is focused on devising computational methods, techniques and tools for analysis, synthesis, form-generation and optimization in designing earth buildings, specifically in:	
	1. Configuring: arrangement of a settlement for a displaced community considering accessibility of amenities, and functional layout of communal/public buildings;	
	2. Forming: devising the 3D shape of the buildings based on their functional configuration, climatic functionality, and structural performance;	
	3. Structuring: construction design of an earth building for a zero-waste circular construction process.	
Course Contents	In this course, students learn computational methods for spatial configuration, design, and construction of a settlement for displaced communities (e.g. refugees, victims of natural disasters), focusing on high-tech design for low-tech construction with earth materials, relying on local labour, low-energy content, passive climatic design strategies, and maximum circularity of the materials. Exploiting the relations between natural material properties, geometry of shape and structural performance will be central to this course.	
	The objectives of the course are twofold:	
	to learn to utilize complex geometry and complex topology in designing form-effective and functional buildings and settlements by means of (visual) programming	
	to learn the physical relation between structural functionality of forms and structural properties of materials	
	Students will learn the fundamentals of computational form-finding for geometrically and topologically complex configurations and structures. The educational challenges are about:	
	1. Configuring:	
	Formulating a functional program of requirements for the displaced community settlement;	
	Designing a settlement by means of computational configuration methods;	
	2. Forming:	
	Researching nature inspired computational geometry;	
	Designing nature-inspired configurations, forms, and structures;	
	Designing a community building (such as school, crafts workshops, community centres)	
	3. Structuring:	
	Designing a zero-waste, circular construction sequence for using the local materials and low-tech construction techniques;	
	Making proof-of-concept physical models of the design	
	All subjects are covered both in lectures, a series of workshops for computational design and programming, and design studios. The aim of the course is not only to design a building in a settlement but to design, document, and disseminate the design workflow as an open-source project.	
Study Goals	The student is able:	
	- to analyse urban context and local characteristics (including, socio-cultural and ethical aspects) of a design assignment and develop a personal position into this.	
	- to computationally design, develop algorithms and underpin the architectural configuration of a settlement suitable for mass-customization in a circular construction process with low-cost materials, local labor, and low-tech construction techniques.	
	- to optimize complex geometric forms for a desired structural performance, given a local material and functional requirements.	
Education Method	Lectures (theory): 24 hours=8 weeks, 3 hours/week;	
	Workshops (practice): 24 hours=8 weeks, 3 hours/week;	
	Design Studio Consultations: 64 hours=8 weeks, 8 hours/week;	
	Assessments: 28 hours	
	Self-study: 280 hours=10 weeks of 28 hours per week	
Assessment	The assessment is based on the quality of the deliverables (products, processes, and documentations) for the modules of the course.	
Period of Education	Quarter (10 Weeks)	

AR3B015	SWAT Studio	15
Responsible Instructor	Dr. C.L. Martin	
Responsible Instructor	Ir. P.G. Teeuw	
Responsible Instructor	Prof.dr.ir. A.A.J.F. van den Dobbelsesteen	
Course Coordinator	Dr. C.L. Martin	
Instructor	Prof.dr.ir. T. Klein	
Instructor	Ir. E.R. van den Ham	
Instructor	F. Oikonomopoulou	
Contact Hours / Week x/x/x/x	16 hours per week	
Education Period	1 3	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Required for	BT master students. Only BT master students will be admitted to the SWAT Studio.	
Expected prior knowledge	The successful completion of MSc1 Bucky Lab, MSc1 Innovation & Sustainability and MSc2 EXTREME or MEGA (or approved equivalent) is required before entry onto the SWAT Studio can be approved. In addition, Building Technology students are strongly advised to have completed two elective courses (2 x 6 ECTS) of Technoledge (Structural Design, Façade Design, Climate Design or Computational Design) in the first quarter of the MSc2.	
Parts	The SWAT Studio consists of three elements. 1. Briefing - Preliminary urban site investigations, socio-technical readings, energy potential mapping and group presentations. 2. Intervention - Intensive onsite workshop in which student groups develop an urban-scaled sustainable proposal in response to the societal urban challenges. 3. Elaboration - One element of the Intervention proposal is individually selected and technically advanced and detailed.	
Course Contents	After having focused on technology in the Bucky Lab and on integrated design in EXTREME / MEGA, students now deal with technical interventions in an existing urban context, whilst working in teams and collaborating with local authorities, experts and other stakeholders.	
Study Goals	The student: - has appropriate insight into latest developments in the market of structural design, façade design and climate design, in particular in regards to sustainability - is able to analyse the urban context and local characteristics (climatic, historic, socio-cultural, ethical and technical) of a design intervention assignment and describe them in a report format through text, diagrams, maps and images - is able to develop a personal position in relation to future urban conditions, urban form and sustainability - is able to translate local circumstances into appropriate design interventions in existing urban blocks, buildings, envelopes or structures - is able to collaborate effectively in multi-disciplinary groups of students and experts in order to communicate group work to an audience of peers and local stakeholders - is able to technically elaborate a conceptual design in the direction of structures, facades or climate concept, and to coherently communicate this via detailed drawings, text and schemes	
Education Method	Educational Method The SWAT Studio consists of lectures (Briefings), an onsite design workshop (Intervention) and individual technical work (Elaboration) under supervision of staff experts. In preparation for the workshop students research/analyze the local circumstances of the assignment site. The onsite workshop (Intervention) can be based abroad, as a consequence students are expected to financially contribute to this excursion. In the acquisition of self-funding a level of pro-activeness is required (amounting to around 500 euro maximum).	
Computer Use	Personal laptops only	
Course Relations	The SWAT Studio forms an integrated part of the Building Technology master track and is aligned with previously completed consecutive courses (MSc1 Bucky Lab, MSc1 Innovation & Sustainability, MSc2 Technoledge and MSc2 EXTREME/MEGA) and with the MSc3/4 Graduation Studio of Sustainable Design that immediately follows.	
Literature and Study Materials	- Broersma S., Fremouw M. & Dobbelsesteen A.; 'Energy Potential Mapping - Visualising Energy Characteristics for the Exergetic Optimisation of the Built Environment', in: Entropy No. 15, Vol. 2, 2013 (490-510) - Girardet H., 2009. Cities as Superorganisms. In: Schumacher Briefing 2 - Creating Sustainable Cities. 6th ed. Padstow, Cornwall, UK: TJ International. Ch. 3. pp.23-26. - Girardet, H., 2004. Cities as Eco-Technical Systems. In: Cities People Planet: Liveable Cities for a Sustainable World. John Wiley & Sons. Ch. 6, pp.108-130. - Herzog, T., R. Krippner, et al. (2004); Facade construction manual. Basel, Birkhäuser. - Holgate, Alan (1997); The art of Structural Engineering, the work of Jörg Schlaich and his team. - Knaack, U., T. Klein, et al. (2007); Facades principles of construction Basel, Birkhäuser. - Kristinsson J. & Dobbelsesteen A. van den (ed.); Integrated Sustainable Design; Delftdigitalpress, 2012 - McDonough, W and Braungart, M., 2009. Waste Equals Food. In: Cradle to Cradle: Re-Making the Way we Make Things. 2nd ed. London: Vintage Books. Ch. 4. - Scheer, H., 2009. Renewable Energy is the Future. In: Girardet, Herbert, ed. Surviving the Century., 2009. London: Earthscan. pp.37-55. - Schumacher, E.F., 1974. The Problem Of Production. In: A. Dobson, ed. The Green Reader., 1998. 3rd ed. London: Andre Deutsch. pp. 29-33. - Steel, C., 2009. Supplying the City. In: Hungry City: How Food Shapes Our Lives. London: Vintage Books. Ch. 2. - Stremke S. & Dobbelsesteen A. van den (eds.); Sustainable Energy Landscapes; CRC Press, 2012 (available digitally) - Watts, A. (2011); Modern Construction Envelopes. Wien, Springer. - Local information from the site of the assignment.	
Prerequisites	MSc1 Bucky Lab, MSc1 Innovation & Sustainability and MSc2 EXTREME or MEGA (or approved equivalent) are all required before acceptance onto the SWAT Studio can be approved. For students who completed their MSc1 and MSc2 before 2013-2014 the transitional measures are applicable.	
Assessment	In regards to the learning goals, site data is to be group collated, then individually elaborated to form a design argument, a process that facilitates the personal differentiation of grades. Grades will be based on the following: 1. Quality and extent of the local analysis (in a preparative presentation with text, maps and images). 2. Quality of the design proposal (in schemes and drawings).	

3. Quality and coherence of the presentation (in communication,, drawings and models).

4. The technical elaboration will be assessed by a grade based on the quality of the report submitted, expressed by references, text, schemes, detail drawings and contextual appropriateness.

Enrolment / Application	Each semester
Special Information	The maximum marking period is 15 work days.
Period of Education	The course lasts for one full quarter (9 weeks). The combination of SWAT Studio work with other course material is strongly discouraged.
Leerstoel	Climate Design & Sustainability (coordinating), Design of Constructions, Building Product Innovation, with the contributions of Structural Design and Design Informatics.
Minimum aantal deelnemers	No (However, in cases where it is deemed that insufficient student numbers are available an alternative programme may be used).
Maximum aantal deelnemers	40 (first semester); no (second semester).
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

Compulsory for LA students

AR3LA020	Research Methodology in Landscape Architecture	5
Responsible Instructor	Dr.ir. I. Bobbink	
Course Coordinator	Dr.ir. I. Bobbink	
Instructor	Dr.ing. S. Nijhuis	
Contact Hours / Week x/x/x/x	45 hours per quarter	
Education Period	1 3	
Start Education	1 3	
Exam Period	1 2 3 4	
Course Language	English	
Summary	The course provides students with academic knowledge and skills in order to conduct and understand science based research and design in landscape architecture. The course explores basic research issues and concepts, as well as specific strategies for research and design in the urban landscape and focuses on research methodology and criteria. The course aims at building a research framework for the graduation studio.	
Course Contents	<p>Alongside design craftsmanship which is also about communication, reflection and negotiation through design academic skills for design research are an important factor in landscape architecture as a practical science. This course aims to provide the students with (a) important theoretical and practical clues for developing a critical academic attitude towards research and design in landscape architecture, and (b) in-depth understanding of important theories, methods and techniques in the field, with the focus on research methodology. On one hand it provides some specific methods and techniques for landscape architectonic research and design, and on the other, it provides backgrounds on general scientific research tools and criteria. In this respect the course contributes to the development of a research framework for the graduation studio.</p> <p>The course is organised around three themes: (1) Landscape architecture as a practical science, (2) Design thinking in landscape architecture and (3) Attitudes in landscape architectonic research and design. In Landscape architecture as a practical science students will get to know general academic perspectives, critical thinking and case-study research. In Design thinking in landscape architecture the design process, creative thinking and design research will be elaborated. Attitudes in landscape architectonic research and design addresses fundamental methods and techniques for research and design. It considers landscape as a living system (process), as a scale continuum (context), as a 3D-environment (space) and/or as a palimpsest (history).</p> <p>The course consists of a lecture series, a seminar methodology in landscape architectonic research and design, and writing a research paper. The lecture series puts forward different influential practitioners and researchers who exemplify a certain attitude towards research and design of the landscape. During the seminar different seminal texts (books and articles) in contemporary theory and practice of landscape research and design will be studied. It delivers material that can be discussed in the group and helps to develop an individual, and knowledge based attitude towards landscape architecture. Finally every student has to deliver a research paper reflecting in-depth understanding, critical reflection and scientific attitude towards theory in landscape architecture. This paper aims to provide a first research outline for the graduation project.</p>	
Study Goals	<p>The student is able to:</p> <ul style="list-style-type: none"> - identify landscape architecture as an academic design discipline with its own theories, methods and techniques; - compare and discuss different landscape architecture design-related research strategies and principles of study and practice; - select and use suitable design-related research strategies and techniques in a particular context; - design a research framework for their graduation project; - write a methodology paper reflecting in-depth understanding, critical reflection and academic attitude. 	
Education Method	<p>Lecture-series The lecture series puts forward different influential practitioners and researchers who exemplify a certain attitude towards research and design of the landscape. The lecture series is obligatory and serves as input to the seminar.</p> <p>Seminar As scheduled there will be a thematic session of three verbal presentations. Three groups of two students will prepare a verbal presentation of 10-15 minutes addressing the assigned text. During the presentation the text will be summarised, analysed, discussed and illustrated with examples (i.e. exemplary landscape designs). Two other students will be asked to ask questions and give a critical reflection.</p> <p>Research paper Finally, every student is asked to write a research paper of at least 2000 words which reflects an in-depth understanding and critical attitude towards theory, methods and techniques in landscape architecture and provides clues for the graduation project.</p>	
Literature and Study Materials	- Nijhuis, S., 'Research methodology in landscape architecture', 2011, (provided)	
Assessment	paper	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Quarter	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR3LA040	Space and Society	5
Responsible Instructor	Dr.ir. I. Bobbink	
Course Coordinator	Dr.ir. I. Bobbink	
Instructor	Dr.ir. M.J. van Dorst	
Contact Hours / Week x/x/x/x	45 hours per quarter	
Education Period	2 4	
Start Education	2 4	
Exam Period	2 3 4 5	
Course Language	English	
Summary	<p>There are different perspectives on the use of the living environment; these are determined by the different disciplines in people-environment studies and by the type of environment.</p> <p>People and places touch upon four relations between people and their environment and on specialities in these fields.</p>	
Course Contents	<p>There are different perspectives on the use of the living environment; these are determined by the different disciplines in people-environment studies and by the type of environment.</p> <p>People and places touch upon four relations between people and their environment and on specialities in these fields.</p> <p>The four discourses are:</p> <p>Environmental psychology Environment-behaviour relations, perception and cognitions and facilitating primary needs (the work of Gifford, Lynch, Alexander).</p> <p>Environmental sociology Social behaviour in the public realm (the work of Jacobs, Gehl).</p> <p>Environmental philosophy Influence of culture on the physical environment and visa versa (the work of Heidegger, Lemaire).</p> <p>Interaction design Community design, city gaming and other forms of co-creating with inhabitants.</p> <p>The four discourses will be underpinned with literature and there will be practical examples of specialisations in the societal design:</p> <ul style="list-style-type: none"> - Lifestyle design; differences between inhabitants, visitors and people passing-by - Child friendly cities - Social Safety design - Territorial behaviour of people in public space - Collective management; maintaining a shared space - Wayfinding and other examples 	
Study Goals	<p>The student:</p> <ul style="list-style-type: none"> - identify and compare with various disciplinary perspectives on designed landscapes in people-environment studies. - can discuss and reflect on designed landscapes as a setting and product of individuals, communities and societies. - can develop and assess a landscape design assignment from an environmental ethics perspective, focusing on moral responsibility towards the natural world. - can apply people-environment methods in a designed landscape assignment. 	
Education Method	<p>Theory and examples will be presented in lectures and practiced in fieldwork. The total course is 5 credits, both elements are of the same weight.</p> <p>The lecture series is 8 times 2 hours on the different discourses and examples. Students will do literature research on an specialisation within societal design that is not presented. They write an individual essay to contribute to the body of knowledge of this course (4 A4).</p> <p>The fieldwork starts with an introduction on behaviour observations and a group excursion in the public space of Delft. Examples of the theory will be explained in the public space of Delft. In a next step students will analyse (in small groups) a specific place in Delft on environmental behaviour interactions. Every group will design an intervention to influence these interactions, build it and test in reality. Every group will present their results in a short movie.</p>	
Assessment	written examen	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Quarter	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

Free Electives 2 EC

Year	2018/2019
Organization	Architecture
Education	Master Architecture, Urbanism & Building Sciences

Compulsory for MBE students

Year	2018/2019
Organization	Architecture
Education	Master Architecture, Urbanism & Building Sciences

Compulsory Choice (2 out of 3)

AR3R057	Case study methods	3
Responsible Instructor	Dr. C.J. van Oel	
Course Coordinator	Dr. C.J. van Oel	
Instructor	Dr. C.J. van Oel	
Contact Hours / Week x/x/x/x	12 hours per quarter	
Education Period	1 2 3	
Start Education	1 2 3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	AR1R055	
Course Contents	For QRM2, 2 courses from AR3R057 (case studies), AR3R058 (Operation Research Methods) and AR3R059 (Applied statistics) need to be chosen. This specialisation in case studies will discuss the theory of case study research. Issues to be addressed include the philosophical underpinning of doing case studies, selection of cases, subjectivity, transparency, trustworthiness and generalizability of research findings. As part of the course, a case study will be conducted in small groups for which one needs to enrol from blackboard. Practicing includes in-depth interviewing , transcribing the interview, using Atlas.ti to analyse the data and reporting.	
Study Goals	The student: - is able to operationalise theoretical/methodological concepts into qualitative and quantitative terms and indicate which analyses and syntheses fit the questions to be solved on the relevant level of scale - is able to select one or more methods applicable to the problem situation at hand - is able to use and elaborate the method(s) chosen to generate knowledge and answering the research question.	
Education Method	Masterclasses, learning-by-doing-a-case-study	
Literature and Study Materials	Bedrettin Yazan (2015). Three Approaches to Case Study Methods in Education: Yin, Merriam, and Stake. The Qualitative Report 2015 Volume 20, Number 2, Teaching and Learning Article 1, 134-152 A. Bryant & K. Charmaz (eds). The Sage Handbook of Grounded Theory. Sage Publications Ltd. 2010. ISBN: 9781849204781. Recommended.	
Assessment	- As a group reporting includes a reporting powerpoint presentation and additional annexes including the full transcript, the audio file, and output from data analyses software (Atlas.ti) - Minimum mark is a 6,0.	
Special Information	The maximum marking period is 15 work days.	
Elective	Yes	
Tags	Research Methods	
Period of Education	Quarter 1, quarter 2 and quarter 3. Not in quarter 4!	
Minimum aantal deelnemers	8	
Maximum aantal deelnemers	18	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR3R058	Operations research methods	3
Responsible Instructor	Dr.ir. R. Binnekamp	
Course Coordinator	Dr.ir. R. Binnekamp	
Instructor	Dr.ir. R. Binnekamp	
Instructor	Ir. M.H. Arkesteijn	
Contact Hours / Week x/x/x/x	12 hours per quarter	
Education Period	1 3	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	AR1R055	
Course Contents	<p>The mission of this course is to teach methodological concepts, research methods and problem solving methodologies that can be applied by (MBE-)students in their final year project (master thesis). A distinction will be made between description-driven methodologies, with a focus on generating knowledge to understand, explain and predict (theoretical empirical, probabilistic) and prescription-driven methodologies, with a focus on generating knowledge to be used to design solutions to solve problems (theoretical formal, deterministic).</p> <p>The course will start with an introduction to the domain of problem solving methodologies in science, both in the technological design sciences as well as in the social management sciences, including mathematical models, operations research, simulation, logical argumentation and mathematical-formal logical systems (software supported) and a critical appraisal of these methodologies.</p> <p>The differences and similarities between problem solving in operations research methods and in empirical research methods will be explained using examples from graduation theses and professional projects in the fields of design and construction management, real estate management and housing. On the basis of case studies, comparative analysis and the systems approach (system thinking and system theory) methodological difficulties concerning practical application and integration of knowledge, theories, methods and techniques will be analyzed.</p> <p>There will be lectures and exercises regarding basic concepts, problem solving strategies and strategic inter-actor design methods, project set-up and operationalization as input to getting started with the graduation thesis.</p>	
Study Goals	<p>When you have completed this course you will be able to:</p> <ol style="list-style-type: none"> 1 Characterize different types of management, decision making and design problems in the fields of architecture, urbanism and building science; 2 Understand the complexities and subtleties of these problems, from a descriptive point of view as well as a prescriptive point of view; 3 Describe the overall process of formulating, analyzing and re-structuring a management, decision making and/or design problem in a solvable way; 4 Understand the various theoretical perspectives and quantitative methods in operations research, managing modelling and choice making; 5 Represent and re-structure a management, decision making and/or design problem in a mathematical design and decision model; 6 Select one or more methods applicable to the problem situation at hand; 7 Make a critical methodological appraisal of scientific quantitative operations research studies. 	
Education Method	Master classes with discussions and presentations of staff and students, combined with assignments and practical exercises.	
Course Relations	<p>Inter-Actor Design, Managing, Modelling and Making Choices. Binnekamp et al, IOS Press, to be published.</p> <p>Engineering Design. Clive Dym and Patrick Little. Wiley International, 2004.</p> <p>Recommended:</p> <p>Bedrijfskundig Management, A.C.J. De Leeuw. Koninklijke Van Gorcum, 2002.</p> <p>Managerial Decision Modelling. Cliff T. Ragsdale. Thomson South-Western, 2007.</p> <p>Strategy Safari, A Guided Tour Through The Wilds Of Strategic Management, Bruce W. Ahlstrand, &#8194;Joseph Lampel and &#8194;Henry Mintzberg. Simon and Schuster, 2005.</p>	
Assessment	<p>The mark will be based on the evaluation of a written assignment and on 2 mathematical models (report).</p> <p>Minimum mark is a 6,0.</p>	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Quarter 1 and 3	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR3R059	Applied statistics	3
Responsible Instructor	Dr. C.J. van Oel	
Course Coordinator	Dr. C.J. van Oel	
Instructor	Dr. C.J. van Oel	
Contact Hours / Week x/x/x/x	16 hours per quarter	
Education Period	1 2 4	
Start Education	1 2 4	
Exam Period	none	
Course Language	English	
Expected prior knowledge	AR1R055	
Course Contents	<p>For QRM2, 2 courses from AR3R057 (case studies), AR3R058 (Operation Research Methods) and AR3R059 (Applied statistics) need to be chosen.</p> <p>The mission of this course is to teach applied statistics for building sciences</p> <p>The course consists of a series of 5 hands-on blended learning practices, provided as a two weeks intensive. There will be several statistical approaches available (e.g. t-test, Cronbach alpha, crosstabs, multivariate (hedonic) regression, discrete choice modelling which is the technique behind the vignettes methods as used in questionnaires, and logistic regression which might be used in comparative studies.</p>	
Study Goals	<p>The student:</p> <ul style="list-style-type: none"> - is able to operationalise theoretical/methodological concepts into quantitative terms and indicate which analyses and syntheses fit the questions to be solved on the relevant level of scale. - is able to select one or more methods applicable to the problem situation at hand - is able to use and elaborate the method(s) chosen to generate knowledge and answering the research question. 	
Education Method	Master classes combined with assignments and practical exercises.	
Literature and Study Materials	Field, A., 'Discovering statistics using SPSS', Sage Publications Ltd, 2013, 4th edition, ISBN 9781446249185	
Assessment	<ul style="list-style-type: none"> - The mark will be based on the evaluation of a final test that is taken at the end of the 2 weeks intensive. - Minimum mark is a 6,0. 	
Special Information	The maximum marking period is 15 work days.	
Period of Education	Quarter	
Minimum aantal deelnemers	8	
Maximum aantal deelnemers	15	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

Free Electives 6 ECTS

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

Compulsory for U students

AR3U013	Analytical methods of urban planning and design	4
Responsible Instructor	Ir. K.P.M. Aalbers	
Responsible Instructor	Dr. L.M. Calabrese	
Course Coordinator	Dr. L.M. Calabrese	
Instructor	K.P.M. Aalbers	
Instructor	Dr. L.M. Calabrese	
Instructor	Dr. L.M. Calabrese	
Instructor	Dr. S.A. Read	
Instructor	Dr.ir. S.C. van der Spek	
Instructor	Ir. L.P.J. van den Burg	
Instructor	Dr.ir. G. Bracken	
Instructor	Dipl.ing. U.D. Hackauf	
Instructor	Dr. D.A. Sepulveda Carmona	
Instructor	Dr. D. Stead	
Instructor	Q. Lei	
Instructor	Dr. M.M. Dabrowski	
Contact Hours / Week	4/4/4/4	
x/x/x/x		
Education Period	1	
Education Period	2	
Education Period	3	
Education Period	4	
Start Education	1	
Start Education	3	
Exam Period	none	
Course Language	English	
Summary	This course aims to support students elaborating a methodological framework for their graduation project in the areas of Urban planning and Urban design.	
Course Contents	The course aims to support students elaborating a methodological framework for their graduation project in the areas of Urban planning and Urban design. Designing a research Master Thesis project, applying an appropriate research method and demonstrating reasonable and convincing results belong to the designerly way of thinking. The course is aimed to situate Urban Planning and Urban Design research within a larger intellectual framework through grasping the indissoluble connection between the development process of ideas and artefacts. The course will therefore be commenced with a review on the development of design methodology as the point of departure. The course deals with the variety of methods to carry out research in Urban Planning and Urban Design by acknowledging that there are different value systems in the several fields of Urbanism and by exploring the various approaches used to define, research and answer relevant questions for the discipline. Urbanism, as it is taught at the TU Delft, is about evidence-based/ theory-supported design craftsmanship, but also about communication, reflection and negotiation through strategic planning and design. The course aims at teaching students how to critically select the most appropriate research methods and tools for their thesis and to organize them in a solid methodological framework, which together with the theoretical framework form the scientific base of their thesis. The course meets the need to create a solid academic foundation of the Masters in the Urbanism programme of the TU Delft, with respect to established academic standards in dialogue with Urban Planning and Urban Design practice.	
Study Goals	<p>The student:</p> <ul style="list-style-type: none"> * Is able to conduct and to evolve a design/research project; * Shows systematic problem finding and problem analysis; * Is able to elaborate problem analysis with references to an appropriate theoretical framework into a well articulated problem statement leading to a relevant and concise set of research questions; * Selects and applies appropriate methods and techniques of design and research in a coherent and systematic way: data collecting and data analysis, desk research etc.; * Displays critical thinking, writing and reviewing of literature and urban design in real practice; * Shows sound academic writing skills; * shows social awareness and professional responsibility. 	
Education Method	Lectures, seminars, workshops and peer reviews. Students are required to actively participate to all activities in the program.	
Literature and Study Materials	Mandatory and recommended literature will be mentioned in the quarter guide or on the specific Bright Space page.	
Assessment	<p>The deliverable for this course is a paper (3000 words) on the methodological framework of the Master thesis, which will be presented as a chapter of the Master thesis.</p> <p>At P1 students will submit an abstract (500 words) of the paper. At P2 students will submit the final paper (3000 words + relevant images). The final assessment and grading will take place at P2.</p> <p>P1. Guidelines for the abstract. The abstract should include the following sections: Motivation: Why do we care about the problem and the results? If the problem isn't obviously "interesting" it might be better to put motivation first; but if your work is incremental progress on a problem that is widely recognized as important, then it is probably better to put the problem statement first to indicate which piece of the larger problem you are breaking off to work on (focus). This section should include the relevance of your research, the difficulty of the area, and the impact it might have. Problem statement: What problem are you trying to solve? What is the scope of your work (a generalized approach, or for a specific situation)? Be careful not to use too much jargon. In some cases, it is appropriate to put the problem statement before the motivation, but usually this only works if most readers already understand why the problem is important. Research question: What is the main research question? What are the sub-research questions? Approach: How are you planning to approach and make progress on the problem? What methods and tools are you planning to use and why? How do these methods and tools relate to each other and to the research question? Expected Results: What is the expected output of your research? Conclusions: Do you expect your results to be potentially generalizable, or specific to a particular case?</p>	

P2. Guidelines for the paper.

The paper should include:

Abstract (300- 500 words);

An analysis of the context resulting in an understanding of the main problem to be tackled;

Problem definition resulting in a problem statement;

A main research question or design objective derived from the problem statement and a set of sub-research questions that complement and help explain the main one/ OR a set of research question that will support the investigation of solutions to attain the design objective;

Intended research approach, including a detailed description of the methods and techniques necessary to answer the research questions;

Elaboration on how the different methods and tools relate to each other within the scope of the thesis;

Societal and scientific relevance of the study + considerations on possible ethical issues (both resulting from the conduction of the research and from the implementation of designs);

Relevant bibliography.

The course staff will review, provide feedback and grade the deliverable based on the following criteria:

1. Structure of the paper on the Methodological Framework;

2. The exercise of critical and analytical skills;

3. Sustained and coherent argumentation;

4. Clarity in presentation and communication;

5. Originality/ possible contribution to the existing body of knowledge;

6. Feasibility of the study within the field of Urbanism and in the framework of a one-year graduation programme.

A rubric will be used for grading. The rubric will be available in the semester guide or on the course specific Bright Space page.

The maximum marking period is 15 work days.

Special Information

Period of Education

Semester

Course evaluation

For the course evaluations see: <http://kwaliteitszorg.bk.tudelft.nl/>

AR3U023	Theories of urban planning and design	4
Responsible Instructor	Ir. K.P.M. Aalbers	
Responsible Instructor	Dr.ir. G. Bracken	
Responsible Instructor	Dr. S.A. Read	
Course Coordinator	Dr. S.A. Read	
Course Coordinator	Dr.ir. G. Bracken	
Instructor	Dr.ir. F.D. van der Hoeven	
Instructor	Dr. S.A. Read	
Instructor	Dr. A. Romein	
Instructor	Dr. A. van Nes	
Instructor	Ir. G.A. Verschuure-Stuip	
Instructor	RC Rocco	
Instructor	Dr.ir. G. Bracken	
Instructor	Dipl.ing. B. Hausleitner	
Instructor	Ir. M. Lub	
Instructor	Dr.ir. T. Kuzniecowa Bacchin	
Instructor	Ir. V.E. Balz	
Instructor	Dr. A. Arjomand Kermani	
Instructor	Ir. K.P.M. Aalbers	
Instructor	Dr. D.A. Sepulveda Carmona	
Instructor	Dr. D.A. Sepulveda Carmona	
Instructor	Dr.ir. M.M.E. Pijpers-Esch	
Instructor	Dr. D. Stead	
Instructor	Dr. F.L. Hooimeijer	
Instructor	Y. Song	
Contact Hours / Week	4/4/4/4	
x/x/x/x		
Education Period	1	
Education Period	2	
Education Period	3	
Education Period	4	
Start Education	1	
Start Education	3	
Exam Period	none	
Course Language	English	
Summary	This course supports master 3 students in their graduation project by focussing on the literature related to theories in the field of urbanism and on the critical use of that literature to develop a review of or position on the theories concerned.	
Course Contents	This course focuses on the literature related to theories in the field of urbanism and on the critical use of that literature to develop a review of or position on the theories concerned. Students will present this review or position in the form of an academic paper. They will demonstrate in this way their command of the knowledge field of their graduation theme/topic and that they are able to relate urban theory to their graduation topic and use it to inform their graduation project.	
Study Goals	The student will:	
Study Goals	attend lectures, do literature study and discuss with course staff and graduation studio first mentors;	
Study Goals	write an academic paper as part of the process of building a theoretical position for his / her graduation project;	
Study Goals	review selected literature or argue a position in relation to the literature and graduation objectives and present this in the form of an academic paper of 3000 words;	
Study Goals	outline a comprehensive overview of the theoretical scope of the project. Deliver a review, position or argumentation paper that deals in depth with an aspect of the project;	
Study Goals	do research that is useful for the graduation project and demonstrates skills of researching and academic writing.	
Education Method	A number of small exercises in seminar setting on urban theory and academic writing:	
Education Method	* how to develop a theoretical underpinning for my project in urbanism;	
Education Method	* how to look for scientific literature relevant for a graduation project;	
Education Method	* how to use these references in written documents;	
Education Method	* how to critically assess scientific literature;	
Education Method	* how to relate urban theory to a graduation project in urban design and planning;	
Education Method	* how to write a paper abstract;	
Education Method	* how to write a review paper.	
Literature and Study Materials	Mandatory and recommended literature will be mentioned in the quarter guide or on the specific Bright Space page.	
Assessment	The deliverable for this course is a review paper on theories in the field of urbanism related to the urban theory of the graduation topic.	
Assessment	The paper will be presented as a chapter of the Master thesis.	
Assessment	Prior to P1 students will submit a paper abstract.	
Assessment	Prior to P2 students will submit the final review paper.	
Assessment	The final assessment and grading will take place at P2.	
Assessment	The assessment criteria for the paper are:	
Assessment	* the command of and grasp of the literature;	
Assessment	* the clarity of the introduction;	
Assessment	* the relevance for the graduation project;	
Assessment	* the adequacy of analysis and synthesis;	
Assessment	* the use of references;	
Assessment	* the clarity of the conclusions;	
Assessment	* the clarity of presentation/organisation (writing style, structure, graphics).	
Assessment	A rubric will be used for grading. The rubric will be available in the semester guide or on the course specific Bright Space page.	

Special Information	The maximum marking period is 15 work days.
Period of Education	Semester
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/

AR3U040	Graduation Orientation	2
Responsible Instructor	Ir. K.P.M. Aalbers	
Responsible Instructor	Dr.ir. R.M. Rooij	
Course Coordinator	Dr.ir. R.M. Rooij	
Instructor	Dr.ir. R.M. Rooij	
Instructor	Ir. K.P.M. Aalbers	
Contact Hours / Week x/x/x/x	2/0/2/0	
Education Period	1 3	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Summary	Within this Graduation Orientation course, students will connect their graduation project research to the main research questions of the (cross-cutting) themes of the Urbanism research programme.	
Course Contents	Within the Graduation Orientation course, students will connect their graduation project research to the main research questions of the (cross-cutting) themes of the Urbanism research programme. Within the Laboratory Urban Transformations and Sustainability and according to their topic of interest, the students will be assigned to work with the research groups in studios where they will work closely with researchers specialized in their specific topic. The research groups -- Complex Cities, Transitional Territories (before: Delta Urbanism), History and Heritage, Urban Fabrics, Urban Metabolism, Design as Politics -- will offer different studio topics every year.	
Study Goals	The student: - develops a broad view of the different disciplines and themes in the Urbanism research field, and is able to state his/hers own position within it; - has knowledge of the general content of the Urbanism research program, and the specific content of the research theme connected to the studio of his/her choice; - is able to provide clear arguments of the connection between his/her own graduation topic and the Urbanism research program.	
Education Method	Seminars: At the beginning of the quarter giving the students an overview of the research work in this field and explaining the Urbanism research program, studio set up and possible subjects / topics, And later providing the student with feedback on his/her graduation topic and the relation between his/her graduation topic and the studio(s) of his/her choice.	
Literature and Study Materials	Mandatory and recommended literature will be mentioned in the quarter guide or on the specific Bright Space page.	
Assessment	A miniposter indicating the preliminary graduation project title, 1 or 2 illustrations / visualisations, preliminary key words, possible location(s), a number of relevant scientific resources in relation to the suggested theme, a brief description indicating the relation to the preferred research group / studio and an interpretation of the relation with the Urbanism research program. This miniposter will be included in the thesis report (from P2 and onwards) and this assignment should help set up the content page of the thesis report. A rubric will be used for grading. The rubric will be available in the semester guide on the course specific Bright Space page.	
Special Information	The maximum marking period is 15 work days.	
Period of Education	Quarter	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

2 EC Free electives

Year	2018/2019
Organization	Architecture
Education	Master Architecture, Urbanism & Building Sciences

Compulsory for all students

AR3EX301	Thesis Project 1 Explore Lab	15
Responsible Instructor	Ir. R.R.J. van de Pas	
Responsible Instructor	Dr.ir. M.C. Stellingwerff	
Responsible Instructor	Ir. E.J.G.C. van Dooren	
Course Coordinator	Ir. R.R.J. van de Pas	
Contact Hours / Week x/x/x/x	X/X/X/X	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Course Contents	Research driven graduation-laboratory for exploration of fascinations in the profession of building sciences.	
	<p>Explore Lab is an exceptional thesis laboratory for students with a unique fascination which cannot be explored in any of the regular thesis labs. This opportunity is only for highly motivated students with an obsessive interest in a specific question and an exceptional ability to lead themselves and others in theoretical and design research. Explore lab is open for students from all tracks, including free (theoretical) master. While engaged in their own fascinations, the explorers work together to design their own curriculum including workshops, lectures, excursions and visiting critics. Unique fascinations require unique mentor teams explorers select their mentors under the guidance of the lab coordinators.</p> <p>The Explore Lab was originally a student initiative. The first Explore Lab started in September 2005. Each couple of years we have an alumni day. We then invite our alumni because we are very much interested to know how our students are doing in practice. We like to see Explore Lab as a student driven cross-disciplinary studio.</p> <p>The Explore Lab starts twice a year: in September and in January. Some weeks before the general date of registration for courses and projects posters will be distributed throughout BK City notifying students about 2 meetings held to inform students about the Explore Lab. At those meetings students can sign up to participate in the lab. They will be invited for an intake meeting at which they will explain and defend their interest for the lab. Only 20 students can actually participate in the Explore Lab per period. Students will be accepted only on presenting a strong fascination that cannot be explored in another studio. It is also essential that students have finished all prior courses and projects and to have collected sufficient credits. Explore lab can also facilitate new developments, like experimental graduation studios in relation with practice (after approval of the dean of the faculty).</p> <p>The students of the Explore Lab are responsible for the program and the agenda through the thesis year. They are expected to work at the faculty as much as they possibly can, because mutual critic is one of the important means of education in the lab. Students do not consume the Explore Lab, but actually create it. They work on their personal and a collective program. The lab coordinator and the project docents are responsible for meeting the goals that are required for examination.</p> <p>Roel van de Pas (general coordinator) Martijn Stellingwerf (coordinator research & workshops) Elise van Dooren (coordinator research & building technology)</p>	
Study Goals	The study goals are dependent on and consistent with the graduation track of the individual student. For architecture students, the study goals are as follows.	
	<p>The student:</p> <ul style="list-style-type: none"> - has skill in architectural design satisfying both aesthetic and technical/functional requirements - has appropriate knowledge of urban and spatial planning and associated techniques - has insight into the relationship between people and architectural constructions and between architectural constructions and their environment, as well as the need to gear architectural constructions and the spaces between them to human needs and standards - has appropriate knowledge of the industries, organisations and procedures that play a role in the conversion of designs into buildings and the incorporation of plans into urban and spatial planning - has appropriate knowledge of and insight into decision-making procedures and processes <p>The graduation report demonstrates the students ability to employ moral sensibility, analysis, creativity, judgment, decision and argumentation skills regarding Architectural ethics and his/her future role as architect. The individual graduation report should not only contain an elaboration regarding the Graduation Projects societal and disciplinary relevance, but has to also address design ethics and the way in which intercultural issues were addressed in the graduation project.</p>	
Education Method	Explorelab is a student driven graduation laboratory. The educational method is therefore to be developed by the students in conversation with each other and the Explorelab coordinators. The assumption is that studio instruction will be the primary teaching method. Students will guide their own studies and determine their own learning styles.	
Assessment	Presentation	
Special Information	The maximum marking period is 10 work days.	
	For enrolment please contact coordinator, Roel van de Pas (R.R.J.vandePas@tudelft.nl).	
Period of Education	Semester	
Minimum aantal deelnemers	1	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR3EX311	Workshop Explore Lab	3
Responsible Instructor	Ir. R.R.J. van de Pas	
Responsible Instructor	Dr.ir. M.C. Stellingwerff	
Course Coordinator	Ir. R.R.J. van de Pas	
Contact Hours / Week x/x/x/x	X/X/X/X	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Course Contents	Research driven graduation-laboratory for exploration of fascinations in the profession of building sciences.	
	<p>Explore Lab is an exceptional thesis laboratory for students with a unique fascination which cannot be explored in any of the regular thesis labs. This opportunity is only for highly motivated students with an obsessive interest in a specific question and an exceptional ability to lead themselves and others in theoretical and design research. Explore lab is open for students from all tracks, including free (theoretical) master. While engaged in their own fascinations, the explorers work together to design their own curriculum including workshops, lectures, excursions and visiting critics. Unique fascinations require unique mentor teams explorers select their mentors under the guidance of the lab coordinators.</p>	
	<p>The students of the Explore Lab are responsible for the program and the agenda through the thesis year. They are expected to work at the faculty as much as they possibly can, because mutual critic is one of the important means of education in the lab. Students do not consume the Explore Lab, but actually create it. They work on their personal and a collective program. The lab coordinator and the project docents are responsible for meeting the goals that are required for examination.</p>	
	<p>The Workshop module is explicitly student driven. Students must develop a collective educational program addressing themes common to their various fascinations. These activities may take the form of workshops, lecture series, visiting critics, excursions, charettes, etc.</p>	
Study Goals	To be formulated with the students in each Explore Lab.	
Education Method	Explorelab is a student driven graduation laboratory. The educational method is therefore to be developed by the students in conversation with each other and the Explorelab coordinators.	
Assessment	To be determined in discussion with students, but the assessment will be based on both the organization of the workshop program and participation in the program.	
Special Information	For enrolment please contact coordinator (Roel van de Pas).	
Period of Education	Semester	
Maximum aantal deelnemers	1	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

MSc 4 Explore

AR4EX300	Thesis Project 2 Explorelab	30
Responsible Instructor	Ir. R.R.J. van de Pas	
Course Coordinator	Ir. R.R.J. van de Pas	
Contact Hours / Week x/x/x/x	X/X/X/X	
Education Period	1 2 3 4	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Course Contents	<p>Research driven graduation-laboratory for exploration of fascinations in the profession of building sciences.</p> <p>Explore Lab is an exceptional thesis laboratory for students with a unique fascination which cannot be explored in any of the regular thesis labs. This opportunity is only for highly motivated students with an obsessive interest in a specific question and an exceptional ability to lead themselves and others in theoretical and design research. Explore lab is open for students from all tracks, including free (theoretical) master. While engaged in their own fascinations, the explorers work together to design their own curriculum including workshops, lectures, excursions and visiting critics. Unique fascinations require unique mentor teams explorers select their mentors under the guidance of the lab coordinators.</p> <p>The Explore Lab was originally a student initiative. The first Explore Lab started in September 2005. Each couple of years we have an alumni day. We then invite our alumni because we are very much interested to know how our students are doing in practice. We like to see Explore Lab as a student driven cross-disciplinary studio.</p> <p>The Explore Lab starts twice a year: in September and in January. Some weeks before the general date of registration for courses and projects posters will be distributed throughout BK City notifying students about 2 meetings held to inform students about the Explore Lab. At those meetings students can sign up to participate in the lab. They will be invited for an intake meeting at which they will explain and defend their interest for the lab. Only 20 students can actually participate in the Explore Lab per period. Students will be accepted only on presenting a strong fascination that cannot be explored in another studio. It is also essential that students have finished all prior courses and projects and to have collected sufficient credits. Explore lab can also facilitate new developments, like experimental graduation studios in relation with practice (after approval of the dean of the faculty).</p> <p>The students of the Explore Lab are responsible for the program and the agenda through the thesis year. They are expected to work at the faculty as much as they possibly can, because mutual critic is one of the important means of education in the lab. Students do not consume the Explore Lab, but actually create it. They work on their personal and a collective program. The lab coordinator and the project docents are responsible for meeting the goals that are required for examination.</p> <p>Roel van de Pas (general coordinator) Martijn Stellingwerf (coordinator research & workshops) Elise van Dooren (coordinator research & building technology)</p>	
Special Information	The maximum marking period is 10 work days.	
Period of Education	For enrolment please contact coordinator (Roel van de Pas).	
Course evaluation	Semester	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

Cross Domain Health

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

MSc 3 Cross Domain Health

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

Compulsory for A students

AR3A160	Lecture Series Research Methods	6
Responsible Instructor	Dr.ir. P.J. Teerds	
Responsible Instructor	Dr.ir. K.M. Havik	
Course Coordinator	Dr.ir. P.J. Teerds	
Instructor	Dipl.ing. R.A. Gorny	
Instructor	M.F. Berkers	
Contact Hours / Week x/x/x/x	28 hours per quarter	
Education Period	1 3	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	General Master 2 level of knowledge.	
Course Contents	The lecture series will allow MSc 3 students from all the departments and chairs of our Faculty to reflect on and explore a series of methodological approaches, which should strengthen their architectural positions in the graduation studio, towards the conclusion of their formative process and the consequent obtainment of the corresponding degree.	
	Students involved in this course are expected to operate at a final year Masters level, meaning they are responsible for performing critically within the series of concepts presented in the course; as well as individually fulfilling course requirements such as being acknowledged with the basics of scientific writing, formulating hypotheses and investigating at a level equivalent to their standing within the curricular track.	
	This lecture series will address scientific integrity to make sure that architecture students develop the necessary skills for integer research approaches while being aware of the societal, political, physical and environmental impacts their research and design work has.	
Study Goals	The lecture series aims to:	
	- Take advantage of the magnitude and diversity of the series. The line-up of lecturers, paired to the differences among the academic tracks followed by students from several chairs and departments, should substantially enhance each discussion, and promote creative approaches to each of the topics discussed.	
	- Endow the students with clear knowledge of the heuristic nature of their work. The central thesis of the course is that all architectural activity is an exploration within identifiable disciplinary fields of experimentation, based on equally identifiable epistememes. Awareness of that explorative/cognitive capacity of architecture we sustain is a crucial element in the formation of an architect.	
	- Present the students with a selection of relevant and progressive architectural methodologies and analytical strategies that are currently being used and discussed within the A+BE academic community and in other outstanding educational institutions.	
	- Invite students to become engaged in these discussions actively, in order for their graduation processes to constitute real contributions to the professional debate that feeds our Faculty. It is expected that, with the information provided in this course, each graduation process aims to produce additional architectural knowledge in the face of established and ongoing research programs.	
	- Focus on moral sensibility, analysis, creativity, judgment, and skills regarding architectural ethics when developing specific expertise.	
Education Method	The course comprises two, parallel activities: A series of lectures and the preparation of a position paper.	
	The lecture series is made up of seven sessions. Six have defined topics, the first is introductory.	
	Each lecture session includes a 30+ min. presentation by a lecturer, a 30+ min presentation by a group of students, and a 30+ minute series of Q&A, presented to both lecturer and students.	
	Each guest lecturer is responsible for submitting on the fore a reference text for students to prepare the session, and a paper of her authorship that exposes, summarizes or complements her presentation. Both documents will be made available to the whole group of students with sufficient anticipation.	
	A group of students will be responsible for preparing each lecture. These groups will be formed during the course intro, and will divide themselves into a subgroup in charge of presenting the topic, and other subgroups in charge of preparing a series of debate topics and questions, for the closing discussion.	
	The whole group of students in charge of preparing each session will participate in a workshop, in which they will be guided in the development of their presentation and the construction of different positions within the chosen topic, looking forward to the debate. These workshops will take place on Monday mornings, and will be tutored by the coordinators of the lecture series and/or staff from the chair of Methods and Analysis.	
	Before entering each lecture session, the group of presenting/debating students will hand in a paper of their authorship (2000 words, aprox.) that exposes, summarizes or complements their presentation, the images that accompany their talk, the questions and debate topics developed to feed the debate, and any other addenda they consider necessary to support their understanding of the topic.	
Literature and Study Materials	A reader will be distributed via Blackboard/Brightspace	
Assessment	Each student is responsible to elaborate on her own reflections regarding the course, the debates, the literature that will be provided and suggested, and her own graduation process, by producing an individual position paper (aprox. 2000 2500 words), following scientific standards of writing and structuring her topics (acknowledging a state of the art for a particular discussion, for example) towards the construction of a methodological apparatus in affinity with her own intentions and inclinations.	
	Upon request, specific tutoring/workshops for this second component are available, in the same group format utilized for the preparation of the sessions.	
	In order to attend one of these tutorials, interested students must submit a full draft of their essay, including their name, student number and current chair/graduation studio. The submission deadline for this draft will be specified at the beginning of the period.	
	The course coordination will group the drafts and submit them to available tutors, by topic affinity. These tutors will read the drafts and subsequently organize a workshop with small groups of students. The aim of these workshops are to clarify doubts, elaborate on formal and stylistic concepts, and contribute thematically to the development of the final versions of the papers.	
	The fact that extra tutoring is available does not mean that the students are not encouraged to also seek additional support from their teachers in the other courses that constitute the graduation track.	
	Position papers are expected to be approximately 2000 2500 words in length, and should comply with academic and scientific standards in terms of form and style.	
	The fundamental aim of this assignment is to enable students to formulate a sound and consistent architectural position, in the	

face of the broader discussions presented as a partial state of the art of professional discussion, both within our Faculty and in contemporary architecture culture.

Articulating a position requires knowledge and understanding of a diverse array of postures, which are carefully considered in response to the problems of our time. Getting acquainted with diverse sources, authors and architectural examples; articulating the information contained in these sources; abstracting and operating with the useful and/or relevant ideas they represent; and (hopefully) further elaborating them into progressive architectural models; are all goals of this exercise.

It is assumed that the reflections generated during the course, and the resulting position paper, are active components of the broader exploration that is the graduation project. Research, reflection, discursive elaboration and historical contextualization are fundamental parts of a complete architectural intervention, meant to perform in site- and cultural-specific conditions, but also in the broader intellectual framework that is the architecture of our time.

In this sense, reflections should elaborate on the central concepts, methods and tools employed in the development of the architectural explorations leading to the Masters degree, at a level that transcends the simple description of steps taken in the elaboration of a project.

Cases of plagiarism will be dealt with according to standard procedures established by the corresponding authorities within the University.

Special Information

Each period will include a normal deadline for the presentation of the final position papers. Papers handed in within this deadline will be graded normally.

An extra hand-in moment will be offered for late papers, around the middle of the following academic period. Papers presented for this extra hand-in moment will only be evaluated in terms of pass (6,0/10,0) and fail (5,0/10,0 and under).

Remarks

Position papers will be evaluated on the following items:

- Has a question been clearly defined?
- Has the question been developed beyond its initial formulation?
- Does the paper acknowledge a state of the art, regarding this question?
- Has a position been taken, in relation to this state of the art?
- Is the paper coherent/concise?
- Does the paper follow a clear methodology?
- Are the sources pertinent, and well used?
- Is the language adequate?

Period of Education

Lectures take place during the first quarter of the period.

The second quarter of the period is used for the production of final position papers.

Individualized tutoring is offered upon request, to students who require extra help in the process of writing their papers, during this second quarter.

Course evaluation

The course will be graded on the basis of a final, position paper, worth 100% of the grade assignable to the Lecture Series. This position paper is expected to range between 2000-2500 words, and must be submitted before a specified deadline.

Only papers accepted and graded with a mark above 5,0/10,0 will be eligible for re-takes or further corrections.

Close attention must be paid to the fact that a passing grade in this course is necessary to apply for a Studio P4 presentation. Please note that the deadline for the presentation of these papers is indicated since the very beginning of the semester. This should allow you to plan the development of your essay without interfering with other deadlines. Conflicts with other courses should be negotiated with the Board of Examiners.

AR3CH010	Health@BK lab	3
Responsible Instructor	Dr.ir. R. Cavallo	
Course Coordinator	Dr. C.J. van Oel	
Course Coordinator	L.A.M. Willekens	
Contact Hours / Week x/x/x/x	X/X/X/X	
Education Period	1 2	
Start Education	1	
Exam Period	none	
Course Language	English	
Required for	graduation in Health@BK (AR3CH010)	
Course Contents	<p>Our society calls for research and design solutions in Health. Because of increasing life expectancy, people get older. A baby girl of today now has a life expectancy of 100 years! The health care costs increase as well, as amongst people of over 65 years 70% suffers from a chronic health condition. To address the increasing costs that comes with an aging population, in 2015 a fundamental change in the Dutch health care system was made. This change had far reaching consequences, not only for people but also for buildings.</p> <p>In this course you will acquire knowledge about the health care system, its buildings and its users.</p> <p>The Health Lab aims to bridge the gap between academia and the professional practice. Once chosen a master, you do no longer collaborate with students who are fascinated by the approaches that are addressed in other master tracks. But it turns out that in practice, collaboration with several experts from different backgrounds is an important asset. Many topics, and Health included, require an interdisciplinary approach to come up with (design) solutions that work.</p> <p>In addition to general information on health-related topics, in 2018/19 we will focus on the main (institutional) care provider in the region of Delft -Pieter van Foreest (https://pietervanforeest.nl/)- and on the largest Dutch academic hospital Erasmus MC in Rotterdam. We will have a series of presentations from professionals as well as site visits and general specialists.</p>	
Study Goals	Student is able to formulate a problem statement in one of the mentioned health fields and deliver a scientifically accountable line of reasoning followed by the formulation of a (set of) research questions.	
Education Method	lectures / presentations, site visits, desk research and tutorials	
Prerequisites	Meetings are required	
Assessment	The line of reasoning is presented in a documentary film for those who also participate in the other related course about health, AR3CH020 (workshop health), and the graduation lab (studio) Health@BK (AR3CH110). For other students a written paper (essay) will be assessed.	
Period of Education	semester	
Maximum aantal deelnemers	25, but students who also participate in the Health@BK graduation lab (AR3CH010) have priority.	

AR3CH020	Workshop Health	6
Responsible Instructor	Dr.ir. R. Cavallo	
Course Coordinator	Dr. C.J. van Oel	
Course Coordinator	L.A.M. Willekens	
Contact Hours / Week x/x/x/x	X/X/X/X	
Education Period	1 2	
Start Education	1	
Exam Period	none	
Course Language	English	
Required for	AR3CH110 (graduation lab Health@BK)	
Course Contents	<p>Our society calls for research and design solutions in Health. Because of increasing life expectancy, people get older. A baby girl of today now has a life expectancy of 100 years! The health care costs increase as well, as amongst people of over 65 years 70% suffers from a chronic health condition. To address the increasing costs that comes with an aging population, in 2015 a fundamental change in the Dutch health care system was made. This change had far reaching consequences, not only for people but also for buildings.</p> <p>The use of 3D Modeling is an important tool in the Health@BK lab, as it acts as a way to facilitate communication among students from different graduation tracks, as well as in communications with professionals from practice; as a mean for co-design with end-users, etc. Since 3D modeling is a main tool, part of the course is spent on developing a 3D model of a health care building.</p> <p>The 3D model then can be used to assess the use of the building and as part of the course, the application of a plug-in tool for space syntax will be learned.</p> <p>To support skills for the documentary film, one will learn more about infographics and other visualization skills.</p>	
Study Goals	<p>Since 3D modeling is aimed as a way to encourage interdisciplinary communication between students from different backgrounds, the workshop health aims to contribute to skills in 3D-modeling and visualization skills as well as collaborative skills:</p> <ul style="list-style-type: none"> - 3D modeling and functional use: <ul style="list-style-type: none"> Students have basic 3D modeling skills and can visualize the use of the building; Students can use infographics to communicate about the relation between health topics, buildings and users; - Collaborative skills <ul style="list-style-type: none"> Students have an understanding of the roles of experts from other disciplines and the responsibilities and dilemmas that come with these roles; Students are able to select and apply various forms of (design) thinking to issues and problems of a professional client in order to consider alternative perspectives and value positions; Students are able to synthesize insights from various points of view in a constructive manner; Students are able to reflect and evaluate their own thinking and the thinking of others in a constructive way. 	
Education Method	computer-based working in the VR lab, lectures, workshops, tutoring	
Assessment	The acquired skills will be applied and assessed as part of the documentary film that will be made as part of the graduation lab Health@BK - AR3CH110 (graduation lab) and AR3CH010 (seminar health).	
Enrolment / Application	Enrollment is only open to students participating in the Health@BK interdisciplinary graduation lab (AR3CH110) and seminar (AR3CH010)	
Period of Education	semester	
Maximum aantal deelnemers	18	

AR3CH110	Health@BK lab	15
Responsible Instructor	Dr.ir. R. Cavallo	
Course Coordinator	Dr. C.J. van Oel	
Course Coordinator	L.A.M. Willekens	
Contact Hours / Week x/x/x/x	X/X/X/X	
Education Period	1 2	
Start Education	1	
Exam Period	none	
Course Language	English	
Expected prior knowledge	seminar Health (AR3CH010) and workshop Health (AR3RCH020)	
Course Contents	<p>The Health Lab aims to bridge the gap between academia and the professional practice. Once chosen a master, you do no longer collaborate with students who are fascinated by the approaches that are addressed in other master tracks. But it turns out that in practice, collaboration with several experts from different backgrounds is an important asset. Many topics, and Health included, require an interdisciplinary approach to come up with (design) solutions that work. Therefore, it is important to practice this during graduation and thus collaborate with other disciplines, and explore design and research solutions that address the topical issue of how as a society we should deal with an aging society, what health care facilities should be like and how we support independent living of elderly.</p> <p>The Health@BK lab (AR3CH110) is the first interdisciplinary graduation lab at BK and runs since September 2018. In 2018/19 we will closely collaborate with professionals from practice at Pieter van Foreest (main care provider in the region of Delft https://pietervanforeest.nl/) and the largest Dutch academic hospital, Erasmus MC. This collaboration has big advantages, for instance in making visits to existing patients facilities and wards, but also in finding people willing to be interviewed, etc.</p> <p>We spend special attention to collaboratively defining the problem space. After P1 the individual track starts which last until P4. Thereafter, we emphasize finding synergy from what you have learned over time, in combination with finalizing individual work to present at P5.</p> <p>You can phrase your own focus, but here are some suggestions: If independent living is that important, what can be done to support people in this. What is inclusive design here? Municipals and housing associations develop policy documents describing responsibilities and targets for housing associations, but how and where do residents come in? Longstay care-providers such as Pieter van Foreest (PvF) are facing redundant and sometimes outdated health care real estate. How to manage, (re)design or adapt and maintain their portfolio? Should they target smart solutions and what advantages might Building Information Modeling (BIM) bring in? Are there possibilities for closer integration with community centres, and/or hospitals? Hospitals are developing into highly specialized cure buildings in which patients only are hospitalized for the shortest possible period. These are high tech buildings and the new developments at the Erasmus MC (https://www.erasmusmc.nl/nieuwbouw/?lang=en) for instance makes clear that adaption and new construction is an ever ongoing process. How to design proper routing in health care buildings such as longstay care departments or hospitals.</p> <p>Central is that the health@BK lab places a strong weight on the translation of research into design solutions of any kind. It may as well be a design for an hospital room, a dementia-friendly neighbourhoods and housing, residential housing facilities near care institutions, or advice / recommendations about strategic management of their health care real estate portfolio to Pieter van Foreest, as well as an evaluation of the healing environment and the importance of roof gardens to this for Erasmus MC .</p> <p>As tutors we have a strong affinity with health. Luc Willekens was trained both as a medical doctor and an architect. Clarine van Oel is an environmental psychologist and specialist in the relation between health, buildings and users. Jelle Koolwijk will coach collaborative processes.</p>	
Study Goals	<p>Since students will need to meet the overall requirements of their individual tracks, the interdisciplinary knowledge base embodies knowledge and understanding, and skills of several domains.</p> <p>Knowledge and understanding: Students demonstrate an understanding of elements from the disciplines of Architecture, Urbanism, Management in the Built Environment, Building Technology and Landscape Architecture; Students have a deep knowledge base in their chosen field of study that is evident not only in merely showing factual knowledge, but can use their knowledge in developing research and (design) solutions; Students demonstrate an understanding of the organization of the Dutch health care system and are able to explain demographic trends that relate to the current organization of the health care system; Students demonstrate that they master their knowledge and understanding by translating expertise in a way that professionals from practice and other persons can understand the essence of it.</p> <p>Skills domain Students are able to conceptualize a problem and capture its essence in a coherent way; Students are able to critically assess the relationships between the relevant disciplinary perspectives in a problem space; Students are able to apply research methods that are central to their own discipline; Students are able to interpret and reflect on results obtained through research methods central to other disciplines; Students are able to systematically split a problem into smaller meaningful components and collect relevant information and/or reference material for addressing these components whilst maintaining overview of the problem at large; Students are able to phrase the intricate relations amongst problem components, and proposed solutions and are able to identify inconsistencies amongst components that complicate the solution at the main level.</p> <p>Collaborative skills Students have an understanding of the roles of experts from other disciplines and the responsibilities and dilemmas that come with these roles; Students are able to select and apply various forms of (design) thinking to issues and problems of a professional client in order to consider alternative perspectives and value positions; Students are able to synthesize insights from various points of view in a constructive manner; Students are able to reflect and evaluate their own thinking and the thinking of others in a constructive way.</p> <p>Attitude domain Students show open-mindedness to understand others with different viewpoints; Students are aware of that their own preferences can bias their proposed design solutions; Students make an effort to adopt an user-driven and evidence-based approach.</p>	
Education Method	interdisciplinary meetings, site visits, tutoring  	
Prerequisites	seminar Health (AR3CH010) and workshop Health (AR3RCH020)	

Assessment	<p>Health@BK lab has 3 phases:</p> <p>1. Phase 1 collaboratively defining the problem space.</p> <p>The assignment in this phase is to develop as a group a docufilm and a website with blogs communicating the different problems to involved professionals (12 weeks).</p> <p>2. Phase 2 - this will be the individual trajectory, and depending on whether graduation is within A, or MBE, one will either develop a design solution at the local, neighbourhood or urban scale using a research-through-design approach, or you will develop your research addressing managerial strategies to support building and maintenance processes (December-May 2018). Discussion of process and content will take place in the group meetings every week. This individual trajectory ends at P4 (go/no go examination).</p> <p>3. Phase 3 - After P4, all students will collaborate in developing a shared strategic advice to PvF with detailed examples as of how PvF can contribute to and enhance and support autonomous living (note autonomous living is not necessarily independent living). In addition, you will finalize individual work.</p> <p>Overview P1 ... P5: P1: Postponed from week 10 to week 12 Week 10 presentation docufilm & website to professionals (client) Week 12 formal P1 P2: GO/NO GO presentation P3: Presentation of individual work; P4: Go/NO GO presentation, end of the individual trajectory Pre-P5: one week before P5: presentation of the shared strategic advice to PvF and Erasmus MC professionals. P5: Final and individual presentation and graduation ceremony.</p>
Period of Education	semester
Maximum aantal deelnemers	18 (if there are less than 9 students per track (A/MBE) there may be more students from the other tracks (A/MBE))

Year	2018/2019
Organization	Architecture
Education	Master Architecture, Urbanism & Building Sciences

Compulsory for MBE students

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

Compulsory

AR3CH010	Health@BK lab	3
Responsible Instructor	Dr.ir. R. Cavallo	
Course Coordinator	Dr. C.J. van Oel	
Course Coordinator	L.A.M. Willekens	
Contact Hours / Week x/x/x/x	X/X/X/X	
Education Period	1 2	
Start Education	1	
Exam Period	none	
Course Language	English	
Required for	graduation in Health@BK (AR3CH010)	
Course Contents	<p>Our society calls for research and design solutions in Health. Because of increasing life expectancy, people get older. A baby girl of today now has a life expectancy of 100 years! The health care costs increase as well, as amongst people of over 65 years 70% suffers from a chronic health condition. To address the increasing costs that comes with an aging population, in 2015 a fundamental change in the Dutch health care system was made. This change had far reaching consequences, not only for people but also for buildings.</p> <p>In this course you will acquire knowledge about the health care system, its buildings and its users.</p> <p>The Health Lab aims to bridge the gap between academia and the professional practice. Once chosen a master, you do no longer collaborate with students who are fascinated by the approaches that are addressed in other master tracks. But it turns out that in practice, collaboration with several experts from different backgrounds is an important asset. Many topics, and Health included, require an interdisciplinary approach to come up with (design) solutions that work.</p> <p>In addition to general information on health-related topics, in 2018/19 we will focus on the main (institutional) care provider in the region of Delft -Pieter van Foreest (https://pietervanforeest.nl/)- and on the largest Dutch academic hospital Erasmus MC in Rotterdam. We will have a series of presentations from professionals as well as site visits and general specialists.</p>	
Study Goals	Student is able to formulate a problem statement in one of the mentioned health fields and deliver a scientifically accountable line of reasoning followed by the formulation of a (set of) research questions.	
Education Method	lectures / presentations, site visits, desk research and tutorials	
Prerequisites	Meetings are required	
Assessment	The line of reasoning is presented in a documentary film for those who also participate in the other related course about health, AR3CH020 (workshop health), and the graduation lab (studio) Health@BK (AR3CH110). For other students a written paper (essay) will be assessed.	
Period of Education	semester	
Maximum aantal deelnemers	25, but students who also participate in the Health@BK graduation lab (AR3CH010) have priority.	

AR3CH020	Workshop Health	6
Responsible Instructor	Dr.ir. R. Cavallo	
Course Coordinator	Dr. C.J. van Oel	
Course Coordinator	L.A.M. Willekens	
Contact Hours / Week x/x/x/x	X/X/X/X	
Education Period	1 2	
Start Education	1	
Exam Period	none	
Course Language	English	
Required for	AR3CH110 (graduation lab Health@BK)	
Course Contents	<p>Our society calls for research and design solutions in Health. Because of increasing life expectancy, people get older. A baby girl of today now has a life expectancy of 100 years! The health care costs increase as well, as amongst people of over 65 years 70% suffers from a chronic health condition. To address the increasing costs that comes with an aging population, in 2015 a fundamental change in the Dutch health care system was made. This change had far reaching consequences, not only for people but also for buildings.</p> <p>The use of 3D Modeling is an important tool in the Health@BK lab, as it acts as a way to facilitate communication among students from different graduation tracks, as well as in communications with professionals from practice; as a mean for co-design with end-users, etc. Since 3D modeling is a main tool, part of the course is spent on developing a 3D model of a health care building.</p> <p>The 3D model then can be used to assess the use of the building and as part of the course, the application of a plug-in tool for space syntax will be learned.</p> <p>To support skills for the documentary film, one will learn more about infographics and other visualization skills.</p>	
Study Goals	<p>Since 3D modeling is aimed as a way to encourage interdisciplinary communication between students from different backgrounds, the workshop health aims to contribute to skills in 3D-modeling and visualization skills as well as collaborative skills:</p> <ul style="list-style-type: none"> - 3D modeling and functional use: <ul style="list-style-type: none"> Students have basic 3D modeling skills and can visualize the use of the building; Students can use infographics to communicate about the relation between health topics, buildings and users; - Collaborative skills <ul style="list-style-type: none"> Students have an understanding of the roles of experts from other disciplines and the responsibilities and dilemmas that come with these roles; Students are able to select and apply various forms of (design) thinking to issues and problems of a professional client in order to consider alternative perspectives and value positions; Students are able to synthesize insights from various points of view in a constructive manner; Students are able to reflect and evaluate their own thinking and the thinking of others in a constructive way. 	
Education Method	computer-based working in the VR lab, lectures, workshops, tutoring	
Assessment	The acquired skills will be applied and assessed as part of the documentary film that will be made as part of the graduation lab Health@BK - AR3CH110 (graduation lab) and AR3CH010 (seminar health).	
Enrolment / Application	Enrollment is only open to students participating in the Health@BK interdisciplinary graduation lab (AR3CH110) and seminar (AR3CH010)	
Period of Education	semester	
Maximum aantal deelnemers	18	

AR3CH110	Health@BK lab	15
Responsible Instructor	Dr.ir. R. Cavallo	
Course Coordinator	Dr. C.J. van Oel	
Course Coordinator	L.A.M. Willekens	
Contact Hours / Week	X/X/X/X	
Education Period	1	
Start Education	1	
Exam Period	none	
Course Language	English	
Expected prior knowledge	seminar Health (AR3CH010) and workshop Health (AR3RCH020)	
Course Contents	<p>The Health Lab aims to bridge the gap between academia and the professional practice. Once chosen a master, you do no longer collaborate with students who are fascinated by the approaches that are addressed in other master tracks. But it turns out that in practice, collaboration with several experts from different backgrounds is an important asset. Many topics, and Health included, require an interdisciplinary approach to come up with (design) solutions that work. Therefore, it is important to practice this during graduation and thus collaborate with other disciplines, and explore design and research solutions that address the topical issue of how as a society we should deal with an aging society, what health care facilities should be like and how we support independent living of elderly.</p> <p>The Health@BK lab (AR3CH110) is the first interdisciplinary graduation lab at BK and runs since September 2018. In 2018/19 we will closely collaborate with professionals from practice at Pieter van Foreest (main care provider in the region of Delft https://pietervanforeest.nl/) and the largest Dutch academic hospital, Erasmus MC. This collaboration has big advantages, for instance in making visits to existing patients facilities and wards, but also in finding people willing to be interviewed, etc.</p> <p>We spend special attention to collaboratively defining the problem space. After P1 the individual track starts which last until P4. Thereafter, we emphasize finding synergy from what you have learned over time, in combination with finalizing individual work to present at P5.</p> <p>You can phrase your own focus, but here are some suggestions: If independent living is that important, what can be done to support people in this. What is inclusive design here? Municipals and housings associations develop policy documents describing responsibilities and targets for housing associations, but how and where do residents come in? Longstay care-providers such as Pieter van Foreest (PvF) are facing redundant and sometimes outdated health care real estate. How to manage, (re)design or adapt and maintain their portfolio? Should they target smart solutions and what advantages might Building Information Modeling (BIM) bring in? Are there possibilities for closer integration with community centres, and/or hospitals? Hospitals are developing into highly specialized cure buildings in which patients only are hospitalized for the shortest possible period. These are high tech buildings and the new developments at the Erasmus MC (https://www.erasmusmc.nl/nieuwbouw/?lang=en) for instance makes clear that adaption and new construction is an ever ongoing process. How to design proper routing in health care buildings such as longstay care departments or hospitals.</p> <p>Central is that the health@BK lab places an strong weight on the translation of research into design solutions of any kind. It may as well be a design for an hospital room, a dementia-friendly neighbourhoods and housing, residential housing facilities near care institutions, or advice / recommendations about strategic management of their health care real estate portfolio to Pieter van Foreest, as well as an evaluation of the healing environment and the importance of roof gardens to this for Erasmus MC .</p> <p>As tutors we have a strong affinity with health. Luc Willekens was trained both as a medical doctor and an architect. Clarine van Oel is an environmental psychologist and specialist in the relation between health, buildings and users. Jelle Koolwijk will coach collaborative processes.</p>	
Study Goals	<p>Since students will need to meet the overall requirements of their individual tracks, the interdisciplinary knowledge base embodies knowledge and understanding, and skills of several domains.</p> <p>Knowledge and understanding: Students demonstrate an understanding of elements from the disciplines of Architecture, Urbanism, Management in the Built Environment, Building Technology and Landscape Architecture; Students have a deep knowledge base in their chosen field of study that is evident not only in merely showing factual knowledge, but can use their knowledge in developing research and (design) solutions; Students demonstrate an understanding of the organization of the Dutch health care system and are able to explain demographic trends that relate to the current organization of the health care system; Students demonstrate that they master their knowledge and understanding by translating expertise in a way that professionals from practice and other persons can understand the essence of it.</p> <p>Skills domain Students are able to conceptualize a problem and capture its essence in a coherent way; Students are able to critically assess the relationships between the relevant disciplinary perspectives in a problem space; Students are able to apply research methods that are central to their own discipline; Students are able to interpret and reflect on results obtained through research methods central to other disciplines; Students are able to systematically split a problem into smaller meaningful components and collect relevant information and/or reference material for addressing these components whilst maintaining overview of the problem at large; Students are able to phrase the intricate relations amongst problem components, and proposed solutions and are able to identify inconsistencies amongst components that complicate the solution at the main level.</p> <p>Collaborative skills Students have an understanding of the roles of experts from other disciplines and the responsibilities and dilemmas that come with these roles; Students are able to select and apply various forms of (design) thinking to issues and problems of a professional client in order to consider alternative perspectives and value positions; Students are able to synthesize insights from various points of view in a constructive manner; Students are able to reflect and evaluate their own thinking and the thinking of others in a constructive way.</p> <p>Attitude domain Students show open-mindedness to understand others with different viewpoints; Students are aware of that their own preferences can bias their proposed design solutions; Students make an effort to adopt an user-driven and evidence-based approach.</p>	
Education Method	interdisciplinary meetings, site visits, tutoring  	
Prerequisites	seminar Health (AR3CH010) and workshop Health (AR3RCH020)	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

Compulsory Choice (2 out of 3)

AR3R057	Case study methods	3
Responsible Instructor	Dr. C.J. van Oel	
Course Coordinator	Dr. C.J. van Oel	
Instructor	Dr. C.J. van Oel	
Contact Hours / Week x/x/x/x	12 hours per quarter	
Education Period	1 2 3	
Start Education	1 2 3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	AR1R055	
Course Contents	For QRM2, 2 courses from AR3R057 (case studies), AR3R058 (Operation Research Methods) and AR3R059 (Applied statistics) need to be chosen. This specialisation in case studies will discuss the theory of case study research. Issues to be addressed include the philosophical underpinning of doing case studies, selection of cases, subjectivity, transparency, trustworthiness and generalizability of research findings. As part of the course, a case study will be conducted in small groups for which one needs to enrol from blackboard. Practicing includes in-depth interviewing , transcribing the interview, using Atlas.ti to analyse the data and reporting.	
Study Goals	The student: - is able to operationalise theoretical/methodological concepts into qualitative and quantitative terms and indicate which analyses and syntheses fit the questions to be solved on the relevant level of scale - is able to select one or more methods applicable to the problem situation at hand - is able to use and elaborate the method(s) chosen to generate knowledge and answering the research question.	
Education Method	Masterclasses, learning-by-doing-a-case-study	
Literature and Study Materials	Bedrettin Yazan (2015). Three Approaches to Case Study Methods in Education: Yin, Merriam, and Stake. The Qualitative Report 2015 Volume 20, Number 2, Teaching and Learning Article 1, 134-152 A. Bryant & K. Charmaz (eds). The Sage Handbook of Grounded Theory. Sage Publications Ltd. 2010. ISBN: 9781849204781. Recommended.	
Assessment	- As a group reporting includes a reporting powerpoint presentation and additional annexes including the full transcript, the audio file, and output from data analyses software (Atlas.ti) - Minimum mark is a 6,0.	
Special Information	The maximum marking period is 15 work days.	
Elective	Yes	
Tags	Research Methods	
Period of Education	Quarter 1, quarter 2 and quarter 3. Not in quarter 4!	
Minimum aantal deelnemers	8	
Maximum aantal deelnemers	18	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR3R058	Operations research methods	3
Responsible Instructor	Dr.ir. R. Binnekamp	
Course Coordinator	Dr.ir. R. Binnekamp	
Instructor	Dr.ir. R. Binnekamp	
Instructor	Ir. M.H. Arkesteijn	
Contact Hours / Week x/x/x/x	12 hours per quarter	
Education Period	1 3	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	AR1R055	
Course Contents	<p>The mission of this course is to teach methodological concepts, research methods and problem solving methodologies that can be applied by (MBE-)students in their final year project (master thesis). A distinction will be made between description-driven methodologies, with a focus on generating knowledge to understand, explain and predict (theoretical empirical, probabilistic) and prescription-driven methodologies, with a focus on generating knowledge to be used to design solutions to solve problems (theoretical formal, deterministic).</p> <p>The course will start with an introduction to the domain of problem solving methodologies in science, both in the technological design sciences as well as in the social management sciences, including mathematical models, operations research, simulation, logical argumentation and mathematical-formal logical systems (software supported) and a critical appraisal of these methodologies.</p> <p>The differences and similarities between problem solving in operations research methods and in empirical research methods will be explained using examples from graduation theses and professional projects in the fields of design and construction management, real estate management and housing. On the basis of case studies, comparative analysis and the systems approach (system thinking and system theory) methodological difficulties concerning practical application and integration of knowledge, theories, methods and techniques will be analyzed.</p> <p>There will be lectures and exercises regarding basic concepts, problem solving strategies and strategic inter-actor design methods, project set-up and operationalization as input to getting started with the graduation thesis.</p>	
Study Goals	<p>When you have completed this course you will be able to:</p> <ol style="list-style-type: none"> 1 Characterize different types of management, decision making and design problems in the fields of architecture, urbanism and building science; 2 Understand the complexities and subtleties of these problems, from a descriptive point of view as well as a prescriptive point of view; 3 Describe the overall process of formulating, analyzing and re-structuring a management, decision making and/or design problem in a solvable way; 4 Understand the various theoretical perspectives and quantitative methods in operations research, managing modelling and choice making; 5 Represent and re-structure a management, decision making and/or design problem in a mathematical design and decision model; 6 Select one or more methods applicable to the problem situation at hand; 7 Make a critical methodological appraisal of scientific quantitative operations research studies. 	
Education Method	Master classes with discussions and presentations of staff and students, combined with assignments and practical exercises.	
Course Relations	<p>Inter-Actor Design, Managing, Modelling and Making Choices. Binnekamp et al, IOS Press, to be published.</p> <p>Engineering Design. Clive Dym and Patrick Little. Wiley International, 2004.</p> <p>Recommended:</p> <p>Bedrijfskundig Management, A.C.J. De Leeuw. Koninklijke Van Gorcum, 2002.</p> <p>Managerial Decision Modelling. Cliff T. Ragsdale. Thomson South-Western, 2007.</p> <p>Strategy Safari, A Guided Tour Through The Wilds Of Strategic Management, Bruce W. Ahlstrand, &#8194;Joseph Lampel and &#8194;Henry Mintzberg. Simon and Schuster, 2005.</p>	
Assessment	<p>The mark will be based on the evaluation of a written assignment and on 2 mathematical models (report).</p> <p>Minimum mark is a 6,0.</p>	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Quarter 1 and 3	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR3R059	Applied statistics	3
Responsible Instructor	Dr. C.J. van Oel	
Course Coordinator	Dr. C.J. van Oel	
Instructor	Dr. C.J. van Oel	
Contact Hours / Week x/x/x/x	16 hours per quarter	
Education Period	1 2 4	
Start Education	1 2 4	
Exam Period	none	
Course Language	English	
Expected prior knowledge	AR1R055	
Course Contents	For QRM2, 2 courses from AR3R057 (case studies), AR3R058 (Operation Research Methods) and AR3R059 (Applied statistics) need to be chosen. The mission of this course is to teach applied statistics for building sciences The course consists of a series of 5 hands-on blended learning practices, provided as a two weeks intensive. There will be several statistical approaches available (e.g. t-test, Cronbach alpha, crosstabs, multivariate (hedonic) regression, discrete choice modelling which is the technique behind the vignettes methods as used in questionnaires, and logistic regression which might be used in comparative studies.	
Study Goals	The student: - is able to operationalise theoretical/methodological concepts into quantitative terms and indicate which analyses and syntheses fit the questions to be solved on the relevant level of scale. - is able to select one or more methods applicable to the problem situation at hand - is able to use and elaborate the method(s) chosen to generate knowledge and answering the research question.	
Education Method	Master classes combined with assignments and practical exercises.	
Literature and Study Materials	Field, A., 'Discovering statistics using SPSS', Sage Publications Ltd, 2013, 4th edition, ISBN 9781446249185	
Assessment	- The mark will be based on the evaluation of a final test that is taken at the end of the 2 weeks intensive. - Minimum mark is a 6,0.	
Special Information	The maximum marking period is 15 work days.	
Period of Education	Quarter	
Minimum aantal deelnemers	8	
Maximum aantal deelnemers	15	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

MSc 4 Cross Domain Health

AR4CH110	Health@BK lab	30
Responsible Instructor	Dr.ir. R. Cavallo	
Course Coordinator	L.A.M. Willekens	
Contact Hours / Week x/x/x/x	X/X/X/X	
Education Period	3	
	4	
Start Education	3	
Exam Period	none	
Course Language	English	
Course Contents	<p>Continuation of MSc 3 graduation project. During the MSc4, the architectural proposal will be developed into a clear and comprehensive architectural design including building technological issues. The architectural design proposal clearly results from the research and (urban) strategy made during the MSc3.</p> <p>Phase Concept Development: Building Logistics, Structure, Program, Sustainability & Circulation The building concept should be clear, program placement explored, sustainable principles integrated early into design and circulation development should be studied here. By the end of this phase the function and form of the building should be clearly articulated and poised for further development. Structural concept should be developed and discussed with the BT mentor.</p> <p>Phase Design Development: Building Plans, Sections, Material Concept, Façade Concept The spatial organization will be explored in more detailed plans and sections of the building; all the programmatic and functional aspects of the building should be developed in detail. Furthermore, students should already be thinking about a material concept and express their intentions through collages and quality references. This is also the phase where facade concept should be articulated. Students should also have a pre-visualization of the most important /interesting spaces in your building. Once the building is well underway students should zoom back and re-examine how the building is working within previous strategies and make sure that architectural design decisions are reinforcing urban strategy and research findings into a clear narrative.</p> <p>Phase Materialization: Visualization & details In this phase students should focus on the development of details together with technical and structural solutions. Material usage should be thoroughly examined and developed according to general building concept(s). Façade design should be finalised and overall appearance of the building in different scales clarified. All the decisions should be represented through the series of both external and internal visualisations.</p> <p>Finalizing Design development and seamless integration of previous phases In this phase students should refine and develop their project based on advises from tutors and other critics in all previous phases.</p> <p>Phase Postproduction Final design, models & public presentation refinement (ie: book, model, panels)</p>	
Study Goals	<p>Upon completion of the MSc1, 2, 3 & 4 studio trajectory the student: Has developed the skills in architectural design satisfying both aesthetic and technical/functional requirements. During the trajectory the complexity of the architectural design increases leading to a level fit for architectural practice. During this trajectory skills are acquired to increasingly incorporate an understanding of the design process attained with regard to architectural history and architectural theory, art, technology and human sciences. Additionally, skills are acquired to incorporate an understanding of the design process attained with regard to the relation between buildings, spaces and society's needs, including environmental aspects. During MSc1, 2, 3 & 4 process skills are acquired to incorporate insights in and knowledge of the design process attained with regard to methods of investigation and designing. Together with the training with regard to aspects of building technology, during the MSc1, 2, 3 & 4 process skills are acquired to incorporate an understanding of the design process with regard to structural design, materialisation of buildings, comfort and climate control.</p> <p>The graduation report demonstrates the student's ability to employ moral sensibility, analysis, creativity, judgment, decision and argumentation skills regarding Architectural ethics and his/her future role as architect. The individual graduation report should not only contain an elaboration regarding the Graduation Projects societal and disciplinary relevance, but has to also address design ethics and the way in which intercultural issues were addressed in the graduation project.</p>	
Education Method	studio tutoring	
Assessment	<p>MSc4: Architectural design of a building (group of buildings) including surrounding (public, collective, private) areas. Materialization and interior design. Building physics and construction, including climate, load bearing construction and detailing</p> <p>P3 intermediate midterm review presentation. P4 Go-NoGo. P5 Final presentation and graduation ceremony.</p>	
Period of Education	semester	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

Cross Domain Stad van de Toekomst

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

MSc 3 Cross Domain Stad van de Toekomst

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

Compulsory for A students

AR3A160	Lecture Series Research Methods	6
Responsible Instructor	Dr.ir. P.J. Teerds	
Responsible Instructor	Dr.ir. K.M. Havik	
Course Coordinator	Dr.ir. P.J. Teerds	
Instructor	Dipl.ing. R.A. Gorny	
Instructor	M.F. Berkers	
Contact Hours / Week	28 hours per quarter	
x/x/x/x		
Education Period	1 3	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	General Master 2 level of knowledge.	
Course Contents	The lecture series will allow MSc 3 students from all the departments and chairs of our Faculty to reflect on and explore a series of methodological approaches, which should strengthen their architectural positions in the graduation studio, towards the conclusion of their formative process and the consequent obtainment of the corresponding degree.	
	Students involved in this course are expected to operate at a final year Masters level, meaning they are responsible for performing critically within the series of concepts presented in the course; as well as individually fulfilling course requirements such as being acknowledged with the basics of scientific writing, formulating hypotheses and investigating at a level equivalent to their standing within the curricular track.	
	This lecture series will address scientific integrity to make sure that architecture students develop the necessary skills for integer research approaches while being aware of the societal, political, physical and environmental impacts their research and design work has.	
Study Goals	The lecture series aims to:	
	- Take advantage of the magnitude and diversity of the series. The line-up of lecturers, paired to the differences among the academic tracks followed by students from several chairs and departments, should substantially enhance each discussion, and promote creative approaches to each of the topics discussed.	
	- Endow the students with clear knowledge of the heuristic nature of their work. The central thesis of the course is that all architectural activity is an exploration within identifiable disciplinary fields of experimentation, based on equally identifiable epistememes. Awareness of that explorative/cognitive capacity of architecture we sustain is a crucial element in the formation of an architect.	
	- Present the students with a selection of relevant and progressive architectural methodologies and analytical strategies that are currently being used and discussed within the A+BE academic community and in other outstanding educational institutions.	
	- Invite students to become engaged in these discussions actively, in order for their graduation processes to constitute real contributions to the professional debate that feeds our Faculty. It is expected that, with the information provided in this course, each graduation process aims to produce additional architectural knowledge in the face of established and ongoing research programs.	
	- Focus on moral sensibility, analysis, creativity, judgment, and skills regarding architectural ethics when developing specific expertise.	
Education Method	The course comprises two, parallel activities: A series of lectures and the preparation of a position paper.	
	The lecture series is made up of seven sessions. Six have defined topics, the first is introductory.	
	Each lecture session includes a 30+ min. presentation by a lecturer, a 30+ min presentation by a group of students, and a 30+ minute series of Q&A, presented to both lecturer and students.	
	Each guest lecturer is responsible for submitting on the fore a reference text for students to prepare the session, and a paper of her authorship that exposes, summarizes or complements her presentation. Both documents will be made available to the whole group of students with sufficient anticipation.	
	A group of students will be responsible for preparing each lecture. These groups will be formed during the course intro, and will divide themselves into a subgroup in charge of presenting the topic, and other subgroups in charge of preparing a series of debate topics and questions, for the closing discussion.	
	The whole group of students in charge of preparing each session will participate in a workshop, in which they will be guided in the development of their presentation and the construction of different positions within the chosen topic, looking forward to the debate. These workshops will take place on Monday mornings, and will be tutored by the coordinators of the lecture series and/or staff from the chair of Methods and Analysis.	
	Before entering each lecture session, the group of presenting/debating students will hand in a paper of their authorship (2000 words, aprox.) that exposes, summarizes or complements their presentation, the images that accompany their talk, the questions and debate topics developed to feed the debate, and any other addenda they consider necessary to support their understanding of the topic.	
Literature and Study Materials	A reader will be distributed via Blackboard/Brightspace	
Assessment	Each student is responsible to elaborate on her own reflections regarding the course, the debates, the literature that will be provided and suggested, and her own graduation process, by producing an individual position paper (aprox. 2000 2500 words), following scientific standards of writing and structuring her topics (acknowledging a state of the art for a particular discussion, for example) towards the construction of a methodological apparatus in affinity with her own intentions and inclinations.	
	Upon request, specific tutoring/workshops for this second component are available, in the same group format utilized for the preparation of the sessions.	
	In order to attend one of these tutorials, interested students must submit a full draft of their essay, including their name, student number and current chair/graduation studio. The submission deadline for this draft will be specified at the beginning of the period.	
	The course coordination will group the drafts and submit them to available tutors, by topic affinity. These tutors will read the drafts and subsequently organize a workshop with small groups of students. The aim of these workshops are to clarify doubts, elaborate on formal and stylistic concepts, and contribute thematically to the development of the final versions of the papers.	
	The fact that extra tutoring is available does not mean that the students are not encouraged to also seek additional support from their teachers in the other courses that constitute the graduation track.	
	Position papers are expected to be approximately 2000 2500 words in length, and should comply with academic and scientific standards in terms of form and style.	
	The fundamental aim of this assignment is to enable students to formulate a sound and consistent architectural position, in the	

	<p>face of the broader discussions presented as a partial state of the art of professional discussion, both within our Faculty and in contemporary architecture culture.</p> <p>Articulating a position requires knowledge and understanding of a diverse array of postures, which are carefully considered in response to the problems of our time. Getting acquainted with diverse sources, authors and architectural examples; articulating the information contained in these sources; abstracting and operating with the useful and/or relevant ideas they represent; and (hopefully) further elaborating them into progressive architectural models; are all goals of this exercise.</p> <p>It is assumed that the reflections generated during the course, and the resulting position paper, are active components of the broader exploration that is the graduation project. Research, reflection, discursive elaboration and historical contextualization are fundamental parts of a complete architectural intervention, meant to perform in site- and cultural-specific conditions, but also in the broader intellectual framework that is the architecture of our time.</p> <p>In this sense, reflections should elaborate on the central concepts, methods and tools employed in the development of the architectural explorations leading to the Masters degree, at a level that transcends the simple description of steps taken in the elaboration of a project.</p> <p>Cases of plagiarism will be dealt with according to standard procedures established by the corresponding authorities within the University.</p>
Special Information	<p>Each period will include a normal deadline for the presentation of the final position papers. Papers handed in within this deadline will be graded normally.</p> <p>An extra hand-in moment will be offered for late papers, around the middle of the following academic period. Papers presented for this extra hand-in moment will only be evaluated in terms of pass (6,0/10,0) and fail (5,0/10,0 and under).</p>
Remarks	<p>Position papers will be evaluated on the following items:</p> <ul style="list-style-type: none"> - Has a question been clearly defined? - Has the question been developed beyond its initial formulation? - Does the paper acknowledge a state of the art, regarding this question? - Has a position been taken, in relation to this state of the art? - Is the paper coherent/concise? - Does the paper follow a clear methodology? - Are the sources pertinent, and well used? - Is the language adequate?
Period of Education	<p>Lectures take place during the first quarter of the period.</p> <p>The second quarter of the period is used for the production of final position papers.</p> <p>Individualized tutoring is offered upon request, to students who require extra help in the process of writing their papersk, during this second quarter.</p>
Course evaluation	<p>The course will be graded on the basis of a final, position paper, worth 100% of the grade assignable to the Lecture Series. This position paper is expected to range between 2000-2500 words, and must be submitted before a specified deadline.</p> <p>Only papers accepted and graded with a mark above 5,0/10,0 will be eligible for re-takes or further corrections.</p> <p>Close attention must be paid to the fact that a passing grade in this course is necessary to apply for a Studio P4 presentation. Please note that the deadline for the presentation of these papers is indicated since the very beginning of the semester. This should allow you to plan the development of your essay without interfering with other deadlines. Conflicts with other courses should be negotiated with the Board of Examiners.</p>

AR3CS010	Workshop Cross Domain Stad van de Toekomst	3
Responsible Instructor	Dr.ir. R. Cavallo	
Course Coordinator	Dr.ir. R. Cavallo	
Education Period	1 2	
Start Education	1	
Exam Period	none	
Course Language	English	
Course Contents	This workshop module is explicitly student driven. Students are asked to develop a collective educational program addressing themes relevant for all participants. These activities may take the form of or include workshops, lecture series, visiting critics, excursions, charettes, etc.	
Study Goals	To be formulated with the participating students.	
Education Method	Educational method is developed by the students in conversation with each other and the course coordinators.	
Assessment	To be determined in discussion with students. The assessment will be based on both the organization of the workshop program and participation in the program.	
Period of Education	Fall Semester	

AR3CS020	Seminar Cross Domain Stad van de Toekomst	6
Responsible Instructor	Dr. F.L. Hooimeijer	
Responsible Instructor	Dr.ir. J.H. Baggen	
Responsible Instructor	Dr.ir. M.G.A.D. Hartevelde	
Responsible Instructor	Dr.ir. T.A. Daamen	
Responsible Instructor	Dr.ir. R. Cavallo	
Course Coordinator	Dr. F.L. Hooimeijer	
Education Period	1 2	
Start Education	1	
Exam Period	none	
Course Language	English	
Course Contents	<p>Given the framework of the project, the aim of the seminar is to:</p> <ul style="list-style-type: none"> - analyse and understand which factors, tendencies, (design research) approaches, technological innovations, development and governance models will be playing a role in the future developments of our cities. - study relevant examples and/or best practices around the world and compare them with the city-study areas of the graduation studio. - collect data into research books to be shared among the participating students. - argument and develop the investigations (research positions) into a written article. <p>Multiple aspects / disciplinary perspectives regarding the (research design) project will be presented by the involved researchers in interactive sessions. A.o., following topics will be discussed: transportation, connectivity, new mobility concepts, housing challenges, climate change mitigation, cultural planning, health and private, public and semi-public spaces, circular economy, politics, resiliency, adaptation strategies.</p> <p>The seminar challenges students to develop critical and comparative investigations focusing on specific insights and positions to be determined within the (research) framework of the studio.</p>	
Study Goals	<ul style="list-style-type: none"> - Become aware of different (design) research methods in order to inform own graduation process. - Acquire necessary research skills in order to set up and develop a research article - Explore different inquiry methodologies and research approaches. - Work in a collaborative way within a multidisciplinary group and probe different constraints to define own (design) research approach. 	
Education Method	Workshops/tutorials given by the involved tutors and/or invited guests/experts	
Assessment	Oral presentation and written report	
Period of Education	Fall semester	

AR3CS030	Studio Cross Domain Stad van de Toekomst	15
Responsible Instructor	Dr.ir. R. Cavallo	
Course Coordinator	Dr.ir. R. Cavallo	
Education Period	1 2	
Start Education	1	
Exam Period	none	
Course Language	English	
Course Contents	<p>This Graduation Lab is a special thesis laboratory for students that would like to develop their own (design and/ or research) fascinations in a multidisciplinary setting. Students with different backgrounds and from different TU Delft MSc tracks will work on common challenges sharing insights, approaches and methodologies proper of their own disciplines. While doing that, students work together to enrich their own graduation pathway, setting up and developing workshops, lectures, excursions and visiting critics.</p> <p>The students of this Graduation Lab are responsible for the program and the agenda through the thesis period. They are expected to work together as much as they possibly can, because mutual critic and collaboration is one of the important means of education in this lab.</p>	
Study Goals	<p>The study goals are dependent on and consistent with the graduation track of the individual student. For architecture students, the study goals are as follows.</p> <p>The student:</p> <ul style="list-style-type: none"> - has skill in architectural design satisfying both aesthetic and technical/functional requirements - has appropriate knowledge of urban and spatial planning and associated techniques - has insight into the relationship between people and architectural constructions and between architectural constructions and their environment, as well as the need to gear architectural constructions and the spaces between them to human needs and standards - has appropriate knowledge of the industries, organisations and procedures that play a role in the conversion of designs into buildings and the incorporation of plans into urban and spatial planning - has appropriate knowledge of and insight into decision-making procedures and processes <p>The graduation report demonstrates the students ability to employ moral sensibility, analysis, creativity, judgment, decision and argumentation skills regarding Architectural ethics and his/her future role as architect. The individual graduation report should not only contain an elaboration regarding the Graduation Projects societal and disciplinary relevance, but has to also address design ethics and the way in which intercultural issues were addressed in the graduation project.</p>	
Education Method	This is a student driven graduation laboratory. The educational method is therefore to be developed by the students in conversation with each other and the coordinators. The assumption is that studio instruction will be the primary teaching method. Students will guide their own studies and determine their own learning styles.	
Assessment	P1 and P2 presentations. Report and products according to the MSc track requirements.	
Period of Education	Fall Semester	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

Compulsory for U students

AR3CS040	Seminar Cross Domain Stad van de Toekomst	6
Responsible Instructor	Dr. F.L. Hooimeijer	
Responsible Instructor	Dr.ir. J.H. Baggen	
Responsible Instructor	Dr.ir. M.G.A.D. Harteveld	
Responsible Instructor	Dr.ir. T.A. Daamen	
Responsible Instructor	Dr.ir. R. Cavallo	
Course Coordinator	Dr. F.L. Hooimeijer	
Education Period	1 2	
Start Education	1	
Exam Period	none	
Course Language	English	
Course Contents	<p>Given the framework of the project, the aim of the seminar is to:</p> <ul style="list-style-type: none"> - analyse and understand which factors, tendencies, (design research) approaches, technological innovations, development and governance models will be playing a role in the future developments of our cities. - study relevant examples and/or best practices around the world and compare them with the city-study areas of the graduation studio. - collect data into research books to be shared among the participating students. - argument and develop the investigations (research positions) into a written article. <p>Multiple aspects / disciplinary perspectives regarding the (research design) project will be presented by the involved researchers in interactive sessions. A.o., following topics will be discussed: transportation, connectivity, new mobility concepts, housing challenges, climate change mitigation, cultural planning, health and private, public and semi-public spaces, circular economy, politics, resiliency, adaptation strategies.</p> <p>The seminar challenges students to develop critical and comparative investigations focusing on specific insights and positions to be determined within the (research) framework of the studio.</p>	
Study Goals	<ul style="list-style-type: none"> - Become aware of different (design) research methods in order to inform own graduation process. - Acquire necessary research skills in order to set up and develop a research article - Explore different inquiry methodologies and research approaches. - Work in a collaborative way within a multidisciplinary group and probe different constraints to define own (design) research approach. 	
Education Method	Workshops/tutorials given by the involved tutors and/or invited guests/experts	
Assessment	Oral presentation and written report	
Period of Education	Fall semester	

AR3CS050	Lab Cross Domain Stad van de Toekomst	15
Responsible Instructor	Dr. F.L. Hooimeijer	
Responsible Instructor	Dr.ir. M.G.A.D. Harteveld	
Responsible Instructor	Dr.ir. R. Cavallo	
Course Coordinator	Dr. F.L. Hooimeijer	
Education Period	1 2	
Start Education	1	
Exam Period	none	
Course Language	English	
Course Contents	<p>This Graduation Lab is a special thesis laboratory for students that would like to develop their own (design and/ or research) fascinations in a multidisciplinary setting. Students with different backgrounds and from different TU Delft MSc tracks will work on common challenges sharing insights, approaches and methodologies proper of their own disciplines. While doing that, students work together to enrich their own graduation pathway, setting up and developing workshops, lectures, excursions and visiting critics.</p> <p>The students of this Graduation Lab are responsible for the program and the agenda through the thesis period. They are expected to work together as much as they possibly can, because mutual critic and collaboration is one of the important means of education in this lab.</p>	
Study Goals	<p>The student:</p> <ul style="list-style-type: none"> * is able to describe and map the problem field of his graduation work on the basis of a motive, fascination, or question (Problem field); * is able to define a relevant field of graduation objectives, concerning research questions and design tasks (Field of graduation objectives); * is able to define an approach, with specific methods, techniques and design instruments for the graduation work (design and research), based on the results of the Master 3 AR3U013 course, which suits the objectives, the design task and the research questions. (Approach); * is able to present a consistent and adequately constructed theoretical framework for the graduation topic, based on the results of the Master 3 course AR3U023 (Theoretical framework); * is able to define and describe the project location and design task, together with an urban analysis, in line with the formulated problem field (Design and research location); * is able to define the in-between and end products appropriate for the aim of the graduation project (In-between and end products); * is able to put forward arguments on how the graduation work will provide a substantial contribution to society and science (Relevance); * is able to present a first concept or hypothesis, in which a first solution or direction for the design task or the main question is embedded (Concept); * is able to provide the agreed time frame with the formulated in-between and end products (Planning). 	
Education Method	This is a student driven graduation laboratory. The educational method is therefore to be developed by the students in conversation with each other and the coordinators. The assumption is that studio instruction will be the primary teaching method. Students will guide their own studies and determine their own learning styles.	
Assessment	P1 and P2 presentations. Report and products according to the MSc track requirements.	
Period of Education	Fall Semester	

AR3U013	Analytical methods of urban planning and design	4
Responsible Instructor	Ir. K.P.M. Aalbers	
Responsible Instructor	Dr. L.M. Calabrese	
Course Coordinator	Dr. L.M. Calabrese	
Instructor	K.P.M. Aalbers	
Instructor	Dr. L.M. Calabrese	
Instructor	Dr. L.M. Calabrese	
Instructor	Dr. S.A. Read	
Instructor	Dr.ir. S.C. van der Spek	
Instructor	Ir. L.P.J. van den Burg	
Instructor	Dr.ir. G. Bracken	
Instructor	Dipl.ing. U.D. Hackauf	
Instructor	Dr. D.A. Sepulveda Carmona	
Instructor	Dr. D. Stead	
Instructor	Q. Lei	
Instructor	Dr. M.M. Dabrowski	
Contact Hours / Week	4/4/4/4	
x/x/x/x		
Education Period	1	
Education Period	2	
Education Period	3	
Education Period	4	
Start Education	1	
Start Education	3	
Exam Period	none	
Course Language	English	
Summary	This course aims to support students elaborating a methodological framework for their graduation project in the areas of Urban planning and Urban design.	
Course Contents	The course aims to support students elaborating a methodological framework for their graduation project in the areas of Urban planning and Urban design. Designing a research Master Thesis project, applying an appropriate research method and demonstrating reasonable and convincing results belong to the designerly way of thinking. The course is aimed to situate Urban Planning and Urban Design research within a larger intellectual framework through grasping the indissoluble connection between the development process of ideas and artefacts. The course will therefore be commenced with a review on the development of design methodology as the point of departure. The course deals with the variety of methods to carry out research in Urban Planning and Urban Design by acknowledging that there are different value systems in the several fields of Urbanism and by exploring the various approaches used to define, research and answer relevant questions for the discipline. Urbanism, as it is taught at the TU Delft, is about evidence-based/ theory-supported design craftsmanship, but also about communication, reflection and negotiation through strategic planning and design. The course aims at teaching students how to critically select the most appropriate research methods and tools for their thesis and to organize them in a solid methodological framework, which together with the theoretical framework form the scientific base of their thesis. The course meets the need to create a solid academic foundation of the Masters in the Urbanism programme of the TU Delft, with respect to established academic standards in dialogue with Urban Planning and Urban Design practice.	
Study Goals	<p>The student:</p> <ul style="list-style-type: none"> * Is able to conduct and to evolve a design/research project; * Shows systematic problem finding and problem analysis; * Is able to elaborate problem analysis with references to an appropriate theoretical framework into a well articulated problem statement leading to a relevant and concise set of research questions; * Selects and applies appropriate methods and techniques of design and research in a coherent and systematic way: data collecting and data analysis, desk research etc.; * Displays critical thinking, writing and reviewing of literature and urban design in real practice; * Shows sound academic writing skills; * shows social awareness and professional responsibility. 	
Education Method	Lectures, seminars, workshops and peer reviews. Students are required to actively participate to all activities in the program.	
Literature and Study Materials	Mandatory and recommended literature will be mentioned in the quarter guide or on the specific Bright Space page.	
Assessment	<p>The deliverable for this course is a paper (3000 words) on the methodological framework of the Master thesis, which will be presented as a chapter of the Master thesis.</p> <p>At P1 students will submit an abstract (500 words) of the paper. At P2 students will submit the final paper (3000 words + relevant images). The final assessment and grading will take place at P2.</p> <p>P1. Guidelines for the abstract. The abstract should include the following sections: Motivation: Why do we care about the problem and the results? If the problem isn't obviously "interesting" it might be better to put motivation first; but if your work is incremental progress on a problem that is widely recognized as important, then it is probably better to put the problem statement first to indicate which piece of the larger problem you are breaking off to work on (focus). This section should include the relevance of your research, the difficulty of the area, and the impact it might have. Problem statement: What problem are you trying to solve? What is the scope of your work (a generalized approach, or for a specific situation)? Be careful not to use too much jargon. In some cases, it is appropriate to put the problem statement before the motivation, but usually this only works if most readers already understand why the problem is important. Research question: What is the main research question? What are the sub-research questions? Approach: How are you planning to approach and make progress on the problem? What methods and tools are you planning to use and why? How do these methods and tools relate to each other and to the research question? Expected Results: What is the expected output of your research? Conclusions: Do you expect your results to be potentially generalizable, or specific to a particular case?</p>	

P2. Guidelines for the paper.

The paper should include:

Abstract (300- 500 words);

An analysis of the context resulting in an understanding of the main problem to be tackled;

Problem definition resulting in a problem statement;

A main research question or design objective derived from the problem statement and a set of sub-research questions that complement and help explain the main one/ OR a set of research question that will support the investigation of solutions to attain the design objective;

Intended research approach, including a detailed description of the methods and techniques necessary to answer the research questions;

Elaboration on how the different methods and tools relate to each other within the scope of the thesis;

Societal and scientific relevance of the study + considerations on possible ethical issues (both resulting from the conduction of the research and from the implementation of designs);

Relevant bibliography.

The course staff will review, provide feedback and grade the deliverable based on the following criteria:

1. Structure of the paper on the Methodological Framework;

2. The exercise of critical and analytical skills;

3. Sustained and coherent argumentation;

4. Clarity in presentation and communication;

5. Originality/ possible contribution to the existing body of knowledge;

6. Feasibility of the study within the field of Urbanism and in the framework of a one-year graduation programme.

A rubric will be used for grading. The rubric will be available in the semester guide or on the course specific Bright Space page.

Special Information

The maximum marking period is 15 work days.

Period of Education

Semester

Course evaluation

For the course evaluations see: <http://kwaliteitszorg.bk.tudelft.nl/>

AR3U023	Theories of urban planning and design	4
Responsible Instructor	Ir. K.P.M. Aalbers	
Responsible Instructor	Dr.ir. G. Bracken	
Responsible Instructor	Dr. S.A. Read	
Course Coordinator	Dr. S.A. Read	
Course Coordinator	Dr.ir. G. Bracken	
Instructor	Dr.ir. F.D. van der Hoeven	
Instructor	Dr. S.A. Read	
Instructor	Dr. A. Romein	
Instructor	Dr. A. van Nes	
Instructor	Ir. G.A. Verschuure-Stuip	
Instructor	RC Rocco	
Instructor	Dr.ir. G. Bracken	
Instructor	Dipl.ing. B. Hausleitner	
Instructor	Ir. M. Lub	
Instructor	Dr.ir. T. Kuzniecowa Bacchin	
Instructor	Ir. V.E. Balz	
Instructor	Dr. A. Arjomand Kermani	
Instructor	Ir. K.P.M. Aalbers	
Instructor	Dr. D.A. Sepulveda Carmona	
Instructor	Dr. D.A. Sepulveda Carmona	
Instructor	Dr.ir. M.M.E. Pijpers-Esch	
Instructor	Dr. D. Stead	
Instructor	Dr. F.L. Hooimeijer	
Instructor	Y. Song	
Contact Hours / Week	4/4/4/4	
x/x/x/x		
Education Period	1	
Education Period	2	
Education Period	3	
Education Period	4	
Start Education	1	
Start Education	3	
Exam Period	none	
Course Language	English	
Summary	This course supports master 3 students in their graduation project by focussing on the literature related to theories in the field of urbanism and on the critical use of that literature to develop a review of or position on the theories concerned.	
Course Contents	This course focuses on the literature related to theories in the field of urbanism and on the critical use of that literature to develop a review of or position on the theories concerned. Students will present this review or position in the form of an academic paper. They will demonstrate in this way their command of the knowledge field of their graduation theme/topic and that they are able to relate urban theory to their graduation topic and use it to inform their graduation project.	
Study Goals	The student will: attend lectures, do literature study and discuss with course staff and graduation studio first mentors; write an academic paper as part of the process of building a theoretical position for his / her graduation project; review selected literature or argue a position in relation to the literature and graduation objectives and present this in the form of an academic paper of 3000 words; outline a comprehensive overview of the theoretical scope of the project. Deliver a review, position or argumentation paper that deals in depth with an aspect of the project; do research that is useful for the graduation project and demonstrates skills of researching and academic writing.	
Education Method	A number of small exercises in seminar setting on urban theory and academic writing: * how to develop a theoretical underpinning for my project in urbanism; * how to look for scientific literature relevant for a graduation project; * how to use these references in written documents; * how to critically assess scientific literature; * how to relate urban theory to a graduation project in urban design and planning; * how to write a paper abstract; * how to write a review paper.	
Literature and Study Materials	Mandatory and recommended literature will be mentioned in the quarter guide or on the specific Bright Space page.	
Assessment	The deliverable for this course is a review paper on theories in the field of urbanism related to the urban theory of the graduation topic. The paper will be presented as a chapter of the Master thesis. Prior to P1 students will submit a paper abstract. Prior to P2 students will submit the final review paper. The final assessment and grading will take place at P2. The assessment criteria for the paper are: * the command of and grasp of the literature; * the clarity of the introduction; * the relevance for the graduation project; * the adequacy of analysis and synthesis; * the use of references; * the clarity of the conclusions; * the clarity of presentation/organisation (writing style, structure, graphics). A rubric will be used for grading. The rubric will be available in the semester guide or on the course specific Bright Space page.	

Special Information	The maximum marking period is 15 work days.
Period of Education	Semester
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/

AR3U040	Graduation Orientation	2
Responsible Instructor	Ir. K.P.M. Aalbers	
Responsible Instructor	Dr.ir. R.M. Rooij	
Course Coordinator	Dr.ir. R.M. Rooij	
Instructor	Dr.ir. R.M. Rooij	
Instructor	Ir. K.P.M. Aalbers	
Contact Hours / Week x/x/x/x	2/0/2/0	
Education Period	1 3	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Summary	Within this Graduation Orientation course, students will connect their graduation project research to the main research questions of the (cross-cutting) themes of the Urbanism research programme.	
Course Contents	Within the Graduation Orientation course, students will connect their graduation project research to the main research questions of the (cross-cutting) themes of the Urbanism research programme. Within the Laboratory Urban Transformations and Sustainability and according to their topic of interest, the students will be assigned to work with the research groups in studios where they will work closely with researchers specialized in their specific topic. The research groups -- Complex Cities, Transitional Territories (before: Delta Urbanism), History and Heritage, Urban Fabrics, Urban Metabolism, Design as Politics -- will offer different studio topics every year.	
Study Goals	The student: - develops a broad view of the different disciplines and themes in the Urbanism research field, and is able to state his/hers own position within it; - has knowledge of the general content of the Urbanism research program, and the specific content of the research theme connected to the studio of his/her choice; - is able to provide clear arguments of the connection between his/her own graduation topic and the Urbanism research program.	
Education Method	Seminars: At the beginning of the quarter giving the students an overview of the research work in this field and explaining the Urbanism research program, studio set up and possible subjects / topics, And later providing the student with feedback on his/her graduation topic and the relation between his/her graduation topic and the studio(s) of his/her choice.	
Literature and Study Materials	Mandatory and recommended literature will be mentioned in the quarter guide or on the specific Bright Space page.	
Assessment	A miniposter indicating the preliminary graduation project title, 1 or 2 illustrations / visualisations, preliminary key words, possible location(s), a number of relevant scientific resources in relation to the suggested theme, a brief description indicating the relation to the preferred research group / studio and an interpretation of the relation with the Urbanism research program. This miniposter will be included in the thesis report (from P2 and onwards) and this assignment should help set up the content page of the thesis report. A rubric will be used for grading. The rubric will be available in the semester guide on the course specific Bright Space page.	
Special Information	The maximum marking period is 15 work days.	
Period of Education	Quarter	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

Year	2018/2019
Organization	Architecture
Education	Master Architecture, Urbanism & Building Sciences

Compulsory for MBE students

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

Compulsory

AR3CS060	Workshop Cross Domain Stad van de Toekomst	3
Responsible Instructor	Dr.ir. R. Cavallo	
Course Coordinator	Dr.ir. R. Cavallo	
Education Period	1 2	
Start Education	1	
Exam Period	none	
Course Language	English	
Course Contents	This workshop module is explicitly student driven. Students are asked to develop a collective educational program addressing themes relevant for all participants. These activities may take the form of or include workshops, lecture series, visiting critics, excursions, charettes, etc.	
Study Goals	To be formulated with the participating students.	
Education Method	Educational method is developed by the students in conversation with each other and the course coordinators.	
Assessment	To be determined in discussion with students. The assessment will be based on both the organization of the workshop program and participation in the program.	
Period of Education	Fall Semester	

AR3CS070	Seminar Cross Domain Stad van de Toekomst	6
Responsible Instructor	Dr. F.L. Hooimeijer	
Responsible Instructor	Dr.ir. J.H. Baggen	
Responsible Instructor	Dr.ir. M.G.A.D. Harteveld	
Responsible Instructor	Dr.ir. T.A. Daamen	
Responsible Instructor	Dr.ir. R. Cavallo	
Course Coordinator	Dr. F.L. Hooimeijer	
Education Period	1 2	
Start Education	1	
Exam Period	none	
Course Language	English	
Course Contents	Given the framework of the project, the aim of the seminar is to: <ul style="list-style-type: none"> - analyse and understand which factors, tendencies, (design research) approaches, technological innovations, development and governance models will be playing a role in the future developments of our cities. - study relevant examples and/or best practices around the world and compare them with the city-study areas of the graduation studio. - collect data into research books to be shared among the participating students. - argument and develop the investigations (research positions) into a written article. <p>Multiple aspects / disciplinary perspectives regarding the (research design) project will be presented by the involved researchers in interactive sessions. A.o., following topics will be discussed: transportation, connectivity, new mobility concepts, housing challenges, climate change mitigation, cultural planning, health and private, public and semi-public spaces, circular economy, politics, resiliency, adaptation strategies.</p> <p>The seminar challenges students to develop critical and comparative investigations focusing on specific insights and positions to be determined within the (research) framework of the studio.</p>	
Study Goals	<ul style="list-style-type: none"> - Become aware of different (design) research methods in order to inform own graduation process. - Acquire necessary research skills in order to set up and develop a research article - Explore different inquiry methodologies and research approaches. - Work in a collaborative way within a multidisciplinary group and probe different constraints to define own (design) research approach. 	
Education Method	Workshops/tutorials given by the involved tutors and/or invited guests/experts	
Assessment	Oral presentation and written report	
Period of Education	Fall semester	

AR3CS080	Graduation Cross Domain Stad van de Toekomst	15
Responsible Instructor	Dr.ir. T.A. Daamen	
Responsible Instructor	Dr.ir. R. Cavallo	
Course Coordinator	Dr.ir. T.A. Daamen	
Education Period	1 2	
Start Education	1	
Exam Period	none	
Course Language	English	
Course Contents	<p>This Graduation Lab is a special thesis laboratory for students that would like to develop their own (design and/ or research) fascinations in a multidisciplinary setting. Students with different backgrounds and from different TU Delft MSc tracks will work on common challenges sharing insights, approaches and methodologies proper of their own disciplines. While doing that, students work together to enrich their own graduation pathway, setting up and developing workshops, lectures, excursions and visiting critics.</p>	
	<p>The students of this Graduation Lab are responsible for the program and the agenda through the thesis period. They are expected to work together as much as they possibly can, because mutual critic and collaboration is one of the important means of education in this lab.</p>	
	<p>Students of the MBE track complete the first two assessments (P1 and P2) by selecting a research subject and mentor team; conducting literature and market research; developing a problem statement, objectives and goals, and an approach to solving the problem and reaching their goals.</p>	
Study Goals	<p>Problem analysis The student has knowledge and understanding of research approaches and methods for translating a subject with scientific and societal relevance into a problem analysis, problem statement, research objectives and research questions in a critical and grounded manner.</p>	
	<p>Literature review The student is familiar with fundamental and recent literature in the area of MBE, and is able to conduct a comprehensive, in-depth literature review that retrieves literature relevant to their graduation project, through which they can substantiate research hypotheses and approaches.</p>	
	<p>Synthesis The student has a creative, innovative and investigative approach to solving the selected problems. The student is capable of identifying relevant knowledge in their own and related areas, acquired in part through the literature review, and systematically utilising it for the definition of a coherent theoretical framework and conceptual models for their research.</p>	
	<p>Methodology The student is capable of selecting appropriate research methods in a transparent and substantiated manner and of applying these in a scientifically and ethically responsible manner.</p>	
	<p>Acceptability and relevance The student is capable of evaluating their own process, products and performance in relation to current scientific and professional knowledge. The student is able to formulate clear conclusions and recommendations for further research and application, and through these demonstrate that their work meets the standards of scientific research and contributes to the solution of societal problems.</p>	
	<p>Time management The student is aware of the requirements for interim and end products, has sufficient time management skills to make a realistic estimate of activities and the amount of time needed for each of them and, on the basis of these, can produce a reliable working plan.</p>	
	<p>Reporting and communication The student is capable of producing informative written reports, suitable to a scientific and professional audience, that provide a structured, coherent, consistent, precise and insightful account of their research process and products. The student is capable of delivering oral presentations of their work in an informative and engaging manner and at an appropriate scientific level, using valid arguments in discussing their subject. The student is open to constructive criticism and is willing to learn from feedback and comments.</p>	
Education Method	<p>This is a student driven graduation laboratory. The educational method is therefore to be developed by the students in conversation with each other and the coordinators. The assumption is that studio instruction will be the primary teaching method. Students will guide their own studies and determine their own learning styles.</p>	
Assessment	<p>- P1: halfway through the course, each student presents the progress of their work in the form of a preliminary report (draft research proposal and plan for the thesis) - P2: at the end of the course, each student presents a final research proposal and plan for the completion of their thesis</p>	
Period of Education	Fall Semester	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

Compulsory Choice (2 out of 3)

AR3R057	Case study methods	3
Responsible Instructor	Dr. C.J. van Oel	
Course Coordinator	Dr. C.J. van Oel	
Instructor	Dr. C.J. van Oel	
Contact Hours / Week x/x/x/x	12 hours per quarter	
Education Period	1 2 3	
Start Education	1 2 3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	AR1R055	
Course Contents	For QRM2, 2 courses from AR3R057 (case studies), AR3R058 (Operation Research Methods) and AR3R059 (Applied statistics) need to be chosen. This specialisation in case studies will discuss the theory of case study research. Issues to be addressed include the philosophical underpinning of doing case studies, selection of cases, subjectivity, transparency, trustworthiness and generalizability of research findings. As part of the course, a case study will be conducted in small groups for which one needs to enrol from blackboard. Practicing includes in-depth interviewing , transcribing the interview, using Atlas.ti to analyse the data and reporting.	
Study Goals	The student: - is able to operationalise theoretical/methodological concepts into qualitative and quantitative terms and indicate which analyses and syntheses fit the questions to be solved on the relevant level of scale - is able to select one or more methods applicable to the problem situation at hand - is able to use and elaborate the method(s) chosen to generate knowledge and answering the research question.	
Education Method	Masterclasses, learning-by-doing-a-case-study	
Literature and Study Materials	Bedrettin Yazan (2015). Three Approaches to Case Study Methods in Education: Yin, Merriam, and Stake. The Qualitative Report 2015 Volume 20, Number 2, Teaching and Learning Article 1, 134-152 A. Bryant & K. Charmaz (eds). The Sage Handbook of Grounded Theory. Sage Publications Ltd. 2010. ISBN: 9781849204781. Recommended.	
Assessment	- As a group reporting includes a reporting powerpoint presentation and additional annexes including the full transcript, the audio file, and output from data analyses software (Atlas.ti) - Minimum mark is a 6,0.	
Special Information	The maximum marking period is 15 work days.	
Elective	Yes	
Tags	Research Methods	
Period of Education	Quarter 1, quarter 2 and quarter 3. Not in quarter 4!	
Minimum aantal deelnemers	8	
Maximum aantal deelnemers	18	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR3R058	Operations research methods	3
Responsible Instructor	Dr.ir. R. Binnekamp	
Course Coordinator	Dr.ir. R. Binnekamp	
Instructor	Dr.ir. R. Binnekamp	
Instructor	Ir. M.H. Arkesteijn	
Contact Hours / Week x/x/x/x	12 hours per quarter	
Education Period	1 3	
Start Education	1 3	
Exam Period	none	
Course Language	English	
Expected prior knowledge	AR1R055	
Course Contents	<p>The mission of this course is to teach methodological concepts, research methods and problem solving methodologies that can be applied by (MBE-)students in their final year project (master thesis). A distinction will be made between description-driven methodologies, with a focus on generating knowledge to understand, explain and predict (theoretical empirical, probabilistic) and prescription-driven methodologies, with a focus on generating knowledge to be used to design solutions to solve problems (theoretical formal, deterministic).</p> <p>The course will start with an introduction to the domain of problem solving methodologies in science, both in the technological design sciences as well as in the social management sciences, including mathematical models, operations research, simulation, logical argumentation and mathematical-formal logical systems (software supported) and a critical appraisal of these methodologies.</p> <p>The differences and similarities between problem solving in operations research methods and in empirical research methods will be explained using examples from graduation theses and professional projects in the fields of design and construction management, real estate management and housing. On the basis of case studies, comparative analysis and the systems approach (system thinking and system theory) methodological difficulties concerning practical application and integration of knowledge, theories, methods and techniques will be analyzed.</p> <p>There will be lectures and exercises regarding basic concepts, problem solving strategies and strategic inter-actor design methods, project set-up and operationalization as input to getting started with the graduation thesis.</p>	
Study Goals	<p>When you have completed this course you will be able to:</p> <ol style="list-style-type: none"> 1 Characterize different types of management, decision making and design problems in the fields of architecture, urbanism and building science; 2 Understand the complexities and subtleties of these problems, from a descriptive point of view as well as a prescriptive point of view; 3 Describe the overall process of formulating, analyzing and re-structuring a management, decision making and/or design problem in a solvable way; 4 Understand the various theoretical perspectives and quantitative methods in operations research, managing modelling and choice making; 5 Represent and re-structure a management, decision making and/or design problem in a mathematical design and decision model; 6 Select one or more methods applicable to the problem situation at hand; 7 Make a critical methodological appraisal of scientific quantitative operations research studies. 	
Education Method	Master classes with discussions and presentations of staff and students, combined with assignments and practical exercises.	
Course Relations	<p>Inter-Actor Design, Managing, Modelling and Making Choices. Binnekamp et al, IOS Press, to be published.</p> <p>Engineering Design. Clive Dym and Patrick Little. Wiley International, 2004.</p> <p>Recommended:</p> <p>Bedrijfskundig Management, A.C.J. De Leeuw. Koninklijke Van Gorcum, 2002.</p> <p>Managerial Decision Modelling. Cliff T. Ragsdale. Thomson South-Western, 2007.</p> <p>Strategy Safari, A Guided Tour Through The Wilds Of Strategic Management, Bruce W. Ahlstrand, &#8194;Joseph Lampel and &#8194;Henry Mintzberg. Simon and Schuster, 2005.</p>	
Assessment	<p>The mark will be based on the evaluation of a written assignment and on 2 mathematical models (report).</p> <p>Minimum mark is a 6,0.</p>	
Special Information	The maximum marking period is 10 work days.	
Period of Education	Quarter 1 and 3	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

AR3R059	Applied statistics	3
Responsible Instructor	Dr. C.J. van Oel	
Course Coordinator	Dr. C.J. van Oel	
Instructor	Dr. C.J. van Oel	
Contact Hours / Week x/x/x/x	16 hours per quarter	
Education Period	1 2 4	
Start Education	1 2 4	
Exam Period	none	
Course Language	English	
Expected prior knowledge	AR1R055	
Course Contents	<p>For QRM2, 2 courses from AR3R057 (case studies), AR3R058 (Operation Research Methods) and AR3R059 (Applied statistics) need to be chosen.</p> <p>The mission of this course is to teach applied statistics for building sciences</p> <p>The course consists of a series of 5 hands-on blended learning practices, provided as a two weeks intensive. There will be several statistical approaches available (e.g. t-test, Cronbach alpha, crosstabs, multivariate (hedonic) regression, discrete choice modelling which is the technique behind the vignettes methods as used in questionnaires, and logistic regression which might be used in comparative studies.</p>	
Study Goals	<p>The student:</p> <ul style="list-style-type: none"> - is able to operationalise theoretical/methodological concepts into quantitative terms and indicate which analyses and syntheses fit the questions to be solved on the relevant level of scale. - is able to select one or more methods applicable to the problem situation at hand - is able to use and elaborate the method(s) chosen to generate knowledge and answering the research question. 	
Education Method	Master classes combined with assignments and practical exercises.	
Literature and Study Materials	Field, A., 'Discovering statistics using SPSS', Sage Publications Ltd, 2013, 4th edition, ISBN 9781446249185	
Assessment	<ul style="list-style-type: none"> - The mark will be based on the evaluation of a final test that is taken at the end of the 2 weeks intensive. - Minimum mark is a 6,0. 	
Special Information	The maximum marking period is 15 work days.	
Period of Education	Quarter	
Minimum aantal deelnemers	8	
Maximum aantal deelnemers	15	
Course evaluation	For the course evaluations see: http://kwaliteitszorg.bk.tudelft.nl/	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

MSc 4 Cross Domain Stad van de Toekomst

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

For A Students

AR4CS010	Cross Domain Stad van de Toekomst	30
Responsible Instructor	Dr.ir. R. Cavallo	
Course Coordinator	Dr.ir. R. Cavallo	
Education Period	3 4	
Start Education	3	
Exam Period	none	
Course Language	English	
Course Contents	<p>This Graduation Lab is a special thesis laboratory for students that would like to develop their own (design and/ or research) fascinations in a multidisciplinary setting. Students with different backgrounds and from different TU Delft MSc tracks will work on common challenges sharing insights, approaches and methodologies proper of their own disciplines. While doing that, students work together to enrich their own graduation pathway, setting up and developing workshops, lectures, excursions and visiting critics.</p> <p>The students of this Graduation Lab are responsible for the program and the agenda through the thesis period. They are expected to work together as much as they possibly can, because mutual critic and collaboration is one of the important means of education in this lab.</p>	
Study Goals	<p>The study goals are dependent on and consistent with the graduation track of the individual student. For architecture students, the study goals are as follows.</p> <p>The student:</p> <ul style="list-style-type: none"> - has skill in architectural design satisfying both aesthetic and technical/functional requirements - has appropriate knowledge of urban and spatial planning and associated techniques - has insight into the relationship between people and architectural constructions and between architectural constructions and their environment, as well as the need to gear architectural constructions and the spaces between them to human needs and standards - has appropriate knowledge of the industries, organisations and procedures that play a role in the conversion of designs into buildings and the incorporation of plans into urban and spatial planning - has appropriate knowledge of and insight into decision-making procedures and processes <p>The graduation report demonstrates the students ability to employ moral sensibility, analysis, creativity, judgment, decision and argumentation skills regarding Architectural ethics and his/her future role as architect. The individual graduation report should not only contain an elaboration regarding the Graduation Projects societal and disciplinary relevance, but has to also address design ethics and the way in which intercultural issues were addressed in the graduation project.</p>	
Education Method	<p>This is a student driven graduation laboratory. The educational method is therefore to be developed by the students in conversation with each other and the coordinators. The assumption is that studio instruction will be the primary teaching method. Students will guide their own studies and determine their own learning styles.</p>	
Assessment	P3, P4 and P5 presentations. Report and products according to the MSc track requirements.	
Period of Education	Spring Semester	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

For U Students

AR4CS020	Cross Domain Stad van de Toekomst	30
Responsible Instructor	Dr. F.L. Hooimeijer	
Responsible Instructor	Dr.ir. M.G.A.D. Hartevelde	
Responsible Instructor	Dr.ir. R. Cavallo	
Course Coordinator	Dr. F.L. Hooimeijer	
Education Period	3 4	
Start Education	3	
Exam Period	none	
Course Language	English	
Course Contents	<p>This Graduation Lab is a special thesis laboratory for students that would like to develop their own (design and/ or research) fascinations in a multidisciplinary setting. Students with different backgrounds and from different TU Delft MSc tracks will work on common challenges sharing insights, approaches and methodologies proper of their own disciplines. While doing that, students work together to enrich their own graduation pathway, setting up and developing workshops, lectures, excursions and visiting critics.</p>	
	<p>The students of this Graduation Lab are responsible for the program and the agenda through the thesis period. They are expected to work together as much as they possibly can, because mutual critic and collaboration is one of the important means of education in this lab.</p>	
Study Goals	<p>The student:</p> <ul style="list-style-type: none"> * is able to describe and carry out research in the field of urbanism and process the research results as well as use drawings/maps/graphics as a means to research; * is able to describe the problem field of the selected topic and translate it into a field of graduation objectives (and design task) with associated research questions and research approach; * is able to describe a clear theoretical framework which is appropriate for the selected topic; * is able to carry out research by design in a methodological way focused on the research questions; * is able to process the research results in the final report adequately: i.e. formulated and/or imagined by means of analytical drawing(s); * is able to use drawings / maps / graphics as a means to research; * is able to define urban design methods, choices, aspects, effects and consequences by means of plan forms and design-instruments; * is able to define and visualised the own working method(s) and the (design) choices within the design process with sound arguments; * is able to define the spatial, functional, technical, and/or social aspects of the design adequately: clear, transparent and with a proper justification; * is able to use plan forms and design-instruments which suit his/her design task; * is able to describe, imagined and justified the effects and consequences of the design proposal(s) with respect to the aimed field; * is able to draw conclusions and define recommendations; * is able to evaluate the urban design and research aims in the conclusions; * is able to indicate clearly and logically which research questions are answered and how that has been processed in the urban design; * is able to define clear, concrete, specific recommendations based on the results of the urban research and/or design; * is able to specify for which questions is still additional (design) research necessary; * is able to show an analytical capacity to present a complex matter in a brief and concise way; * is able to describe the projects relevance, reflect on the products and present these; * is able to describe clearly the innovative (scientific and/or social) insights of the graduation project in text and images and, if necessary, concrete strategies and/or application possibilities for the field of the urbanism; * is able to position the own graduation project with respect to the field of the urbanism, as well as other adjacent scientific fields; * is able to discuss and present the thesis products (urban design & research) and the process (design & research) in the form of an epilogue or evaluation. <p>In short, the student has to show that he/she is able to deliver a project of professional quality and of academic level in line with the end terms of the master track</p>	
Education Method	<p>This is a student driven graduation laboratory. The educational method is therefore to be developed by the students in conversation with each other and the coordinators. The assumption is that studio instruction will be the primary teaching method. Students will guide their own studies and determine their own learning styles.</p>	
Assessment	P3, P4 and P5 presentations. Report and products according to the MSc track requirements.	
Period of Education	Spring Semester	

Year 2018/2019
Organization Architecture
Education Master Architecture, Urbanism & Building Sciences

For MBE Students

AR4CS030	Cross Domain Stad van de Toekomst	30
Responsible Instructor	Dr.ir. T.A. Daamen	
Responsible Instructor	Dr.ir. R. Cavallo	
Course Coordinator	Dr.ir. T.A. Daamen	
Education Period	3	
	4	
Start Education	3	
Exam Period	none	
Course Language	English	
Course Contents	<p>This Graduation Lab is a special thesis laboratory for students that would like to develop their own (design and/ or research) fascinations in a multidisciplinary setting. Students with different backgrounds and from different TU Delft MSc tracks will work on common challenges sharing insights, approaches and methodologies proper of their own disciplines. While doing that, students work together to enrich their own graduation pathway, setting up and developing workshops, lectures, excursions and visiting critics.</p>	
	<p>The students of this Graduation Lab are responsible for the program and the agenda through the thesis period. They are expected to work together as much as they possibly can, because mutual critic and collaboration is one of the important means of education in this lab.</p>	
Study Goals	<p>Based on the P2 results and supervised by the mentor team, students individually conduct research towards completion of their graduation project, in a way that demonstrates their ability to meet the final learning goals of the MBE Master track, as well those of the Faculty of Architecture & the Built Environment and of Delft University of Technology.</p>	
Education Method	Individual research towards completion of a Master thesis, under supervision by two mentors.	
Assessment	<ul style="list-style-type: none"> - P3: halfway through the semester each student delivers an interim presentation and a draft graduation report. - P4: at the end of the semester each student delivers a presentation of the completed project and a draft final graduation report. - P5: having passed the P4 exam, each student finalises their final graduation report and defends it in the final examination session. 	
Period of Education	Spring Semester	

Ir. K.P.M. Aalbers

Unit	Bouwkunde
Department	Smart Architecture
Telephone	+31 15 27 84430
Room	08.BG.West.170

Unit	Bouwkunde
Department	Environmental Techn. & Design
Telephone	+31 15 27 84430
Room	08.BG.West.170

Unit	Bouwkunde
Department	Environmental Design
Telephone	+31 15 27 84430
Room	08.BG.West.170

K.P.M. Aalbers

A.S. Alkan

Unit	Bouwkunde
Department	Publieke Gebouwen

Dr. A. Altes Arlandis

Unit	Bouwkunde
Department	Methoden & Analyse
Room	08.01.Oost.700

N.J. Amorim Mota

Unit	Bouwkunde
Department	Woningontwerp

Unit	Bouwkunde
Department	Docenten extern

Unit	Bouwkunde
Department	Woningbouw

Unit	Bouwkunde
Department	Woningbouw

Ir. M.T. Andeweg

Unit	Bouwkunde
Department	Housing Management
Room	08.01.West.700

O.J. Andrade Castro

Unit	Bouwkunde
Department	Methoden & Analyse
Room	08.01.Oost.760

Dr. A. Arjomand Kermani

Unit	Bouwkunde
Department	Ruimt. Planning & Strategie
Telephone	+31 15 27 84430
Room	08.BG.West.170

Unit	Bouwkunde
Department	Ruimt. Planning & Strategie
Telephone	+31 15 27 84430
Room	08.BG.West.170

Unit	Bouwkunde
Department	Ruimt. Planning & Strategie
Telephone	+31 15 27 84430
Room	08.BG.West.170

Unit	Bouwkunde
Department	Cultuurhistorie en Ontwerp

Telephone Room +31 15 27 84430
08.BG.West.170

Unit Department Bouwkunde
Ruimt. Planning & Strategie
Telephone Room +31 15 27 84430
08.BG.West.170

M. Arkesteijn
Ir. M.H. Arkesteijn

Unit Department Bouwkunde
Real Estate Management
Telephone +31 15 27 88427

J. Arpa Fernandez

Unit Department Bouwkunde
The Why Factory

Prof.ir. M.F. Asselbergs

Unit Department Bouwkunde
Architectural Engineering

Dr. S. Asut

Unit Department Bouwkunde
Design Informatics
Room 08.01.West.110

Dr.ir. J.H. Baggen

Unit Department Civiele Techniek & Geowetensch
Transportplanning
Telephone Room +31 15 27 84813
23.HG 4.25

Unit Department Techniek, Bestuur & Management
Transport and Logistics
Telephone Room +31 15 27 84813
23.HG 4.25

Ir. S.T. Bakker

Unit Department Bouwkunde
Praktijkdocenten

Unit Department Bouwkunde
Praktijkdocenten
Room -

Ir. V.E. Balz

Unit Department Bouwkunde
Ruimt. Planning & Strategie
Telephone Room +31 15 27 84430
08.BG.West.170

Unit Department Bouwkunde
Ruimt. Planning & Strategie
Telephone Room +31 15 27 84430
08.BG.West.170

Unit Department Bouwkunde
Ruimt. Planning & Strategie
Telephone Room +31 15 27 84430
08.BG.West.170

Ir. H.A. van Bennekom

Unit Department Bouwkunde
Complexe projecten
Room 08.01.Oost.700

Dr. H.D. van Bergeijk

Unit	Bouwkunde
Department	Architectuur & Stedenbouw Gesch
Telephone	+31 15 27 81018
Room	08.01+.Oost.700

Ir. A.C. Bergsma

Unit	Bouwkunde
Department	Design of Construction

M.F. Berkers

Unit	Bouwkunde
Department	Praktijkdocenten

Ir. E.M. Bet

Unit	Bouwkunde
Department	Urban Compositions
Telephone	+31 15 27 84430
Room	08.BG.West.170

H.H. Bier

Unit	Bouwkunde
Department	Digital Architecture
Telephone	+31 15 27 85954
Room	08.01.WEST110

Unit	Bouwkunde
Department	Publieke Gebouwen
Telephone	+31 15 27 85954
Room	08.01.WEST110

Dr.ing. M. Bilow

Unit	Bouwkunde
Department	Product Development
Room	08.01.West.130

Dr.ir. R. Binnekamp

Unit	Bouwkunde
Department	Real Estate Management
Telephone	+31 15 27 89535
Room	08.01.West.700

Prof.dr.ir. P.M. Bluijssen

Unit	Bouwkunde
Department	Indoor Environment

Dr.ir. I. Bobbink

Unit	Bouwkunde
Department	Landschapsarchitectuur
Telephone	+31 15 27 84430
Room	08.BG.West.170

Prof.dr. P.J. Boelhouwer

Unit	Bouwkunde
Department	Volkshuisvesting & Woningmarkt
Telephone	+31 15 27 81908
Room	BG+.West.610

Unit	Bouwkunde
Department	Housing Systems
Telephone	+31 15 27 81908
Room	BG+.West.610

Dr. R.M.J. Bokel

Unit	Bouwkunde
Department	Building Physics
Room	08.01WEST110

Ir. A. Borgart

Unit	Bouwkunde
Department	Structural Mechanics
Telephone	+31 15 27 84157
Room	08.01WEST130

Dr.ing. G.A. van Bortel

Unit	Bouwkunde
Department	Housing Management
Room	08.01.West.700

Ir. T. Bouma

Unit	Bouwkunde
Department	Docenten extern
Telephone	+31 15 27 84430
Room	08.BG.West.170

Unit	Bouwkunde
Department	Urban Compositions
Telephone	+31 15 27 84430
Room	08.BG.West.170

Dr.ir. G. Bracken

Unit	Bouwkunde
Department	Ruimt. Planning & Strategie
Telephone	+31 15 27 81830
Room	08.00OOST410

Ir. S. Broersma

Unit	Bouwkunde
Department	Climate Des. & Sustainability
Room	08.01WEST130

Prof.dr. E.M. van Bueren

Unit	Bouwkunde
Department	Urban Development Mgt.
Telephone	+31 15 27 84515
Room	08.01.West.700

Ir. L.P.J. van den Burg

Unit	Bouwkunde
Department	Urban Compositions
Telephone	+31 15 27 84430
Room	08.BG.West.170

Dr. L.M. Calabrese

Unit	Bouwkunde
Department	Stadsontwerp
Telephone	+31 15 27 84430
Room	08.BG.West.170

Dr. O. Caso

Unit	Bouwkunde
Department	Complexe Projecten
Room	08.01OOST700

Dr.ir. R. Cavallo

Unit	Bouwkunde
Department	Onderwijs en Studentenzaken

Telephone +31 15 27 85352

Unit Bouwkunde
Department Complexe Projecten
Telephone +31 15 27 85352

Prof.mr.dr. M.A.B. Chao-Duivis

Unit Bouwkunde
Department Building Law
Telephone +31 15 27 85127

Y. Chen

Unit Bouwkunde
Department Urban Development Mgt.
Telephone +31 15 27 81272

Drs. I.G. Cieraad

Unit Bouwkunde
Department Interieur
Telephone +31 15 27 83849
Room 08.01OOST700

Unit Bouwkunde
Department Interieur
Telephone +31 15 27 83849
Room 08.01OOST700

N.J. Clarke

Unit Bouwkunde
Department Praktijkdocenten

Unit Bouwkunde
Department Praktijkdocenten

Unit Bouwkunde
Department Docenten extern

Unit Bouwkunde
Department Cultureel Erfgoed
Room -

Unit Bouwkunde
Department Heritage & Cultural Value

G. Coumans

Unit Bouwkunde
Department Modelling Techniques
Room 08.BG.Zuid.080

F.T.J. Curvelo Magdaniel

Unit Bouwkunde
Department Real Estate Management
Telephone +31 15 27 81454

Unit Bouwkunde
Department Real Estate Management
Telephone +31 15 27 81454

Unit Bouwkunde
Department Real Estate Management
Telephone +31 15 27 81454

Dr. D.K. Czischke Ljubetic

Unit Bouwkunde
Department Housing Management
Room 08.01.West.700

Unit	Bouwkunde
Department	Housing
Room	08.01.West.700

Unit	Bouwkunde
Department	Housing Management
Room	08.01.West.700

Dr.ir. T.A. Daamen

Unit	Bouwkunde
Department	Urban Development Mgt.
Telephone	+31 15 27 87725
Room	08.01.West.700

Dr. M.M. Dabrowski

Unit	Bouwkunde
Department	Ruimt. Planning & Strategie
Telephone	+31 15 27 84430
Room	08.BG.West.110

Ir. A.M.F. van Dam

Unit	Bouwkunde
Department	Publieke Gebouwen
Telephone	+31 15 27 85295
Room	08.01OOST700

N.E.A.I. Deboutte

Unit	Bouwkunde
Department	Publieke Gebouwen

Unit	Bouwkunde
Department	Publieke Gebouwen

Prof.ir. R.J. Dijkstra

Unit	Bouwkunde
Department	Stadsontwerp
Telephone	+31 15 27 84430
Room	08.BG.West.170

Prof.dr.ir. A.A.J.F. van den Dobbelsteen

Unit	Bouwkunde
Department	Climate Des. & Sustainability
Telephone	+31 15 27 83563
Room	08.01WEST130

Ir. E.J.G.C. van Dooren

Unit	Bouwkunde
Department	Architectural Engineering
Telephone	+31 15 27 81064

Dr.ir. M.J. van Dorst

Unit	Bouwkunde
Department	Environmental Techn. & Design
Telephone	+31 15 27 84430
Room	08.BG.West.170

P. Eigenraam

Unit	Bouwkunde
Department	Structural Mechanics

Prof.dr.ir. M.G. Elsinga

Unit	Bouwkunde
Department	Volkshuisvesting & Woningmarkt

Telephone Room	+31 15 27 83246 08.01.West.510
-----------------------	-----------------------------------

Unit Department	Onderzoeksinstituut OTB Volkshuisvesting & Woningmarkt
Telephone Room	+31 15 27 83246 08.01.West.510

M.J. Emmerik

Unit Department	Bouwkunde Design and Politics
Telephone Room	+31 15 27 84430 08.BG.West.170

Unit Department	Bouwkunde Design and Politics
Telephone Room	+31 15 27 84430 08.BG.West.170

Dr.ir. P.J.W. van den Engel

Unit Department	Bouwkunde Building Services
------------------------	--------------------------------

Unit Department	Bouwkunde Building Services
------------------------	--------------------------------

S. Filippas

Unit Department	Bouwkunde Praktijkdocenten
------------------------	-------------------------------

Unit Department	Bouwkunde Praktijkdocenten
------------------------	-------------------------------

Prof.ir. D.E. van Gameren

Unit Department	Bouwkunde Architecture
Telephone Room	+31 15 27 83097 08.01.Oost.700

S. Gargaretas

Unit Department	Bouwkunde Praktijkdocenten
------------------------	-------------------------------

Unit Department	Opgeheven onderdelen Support The Why Factory
------------------------	---

Ir. F. Geerts

Unit Department	Bouwkunde Publieke Gebouwen
Telephone Room	+31 15 27 87580 08.01OOST700

R. Gkaidatzis

Unit Department	Bouwkunde Structural Design
------------------------	--------------------------------

Dr.ir. L.J.J.H.M. Gommans

Unit Department	Bouwkunde Climate Des. & Sustainability
Room	08.01WEST130

Dipl.ing. R.A. Gorny

Unit Department	Bouwkunde Praktijkdocenten
Room	08.01.Oost.760

Unit Bouwkunde
Department Methoden & Analyse
Room 08.01.Oost.760

Unit Bouwkunde
Department Docenten extern
Room 08.01.Oost.760

Unit Bouwkunde
Department Decaan
Room 08.01.Oost.760

Unit Bouwkunde
Department Decaan
Room 08.01.Oost.760

Dr.ir. E.H. Gramsbergen

Unit Bouwkunde
Department Complexe Projecten
Telephone +31 15 27 83097
Room 08.01OOST700

Ir. B. Gremmen

Unit Bouwkunde
Department Architectural Engineering
Telephone +31 6 53406292
Room 08.01.West.130

Prof.dr.ir. V.H. Gruis

Unit Bouwkunde
Department Man. in the Built Environment
Telephone +31 15 27 84992
Room 08.01.West.700

Ir. M.J. de Haas

Unit Bouwkunde
Department Publieke Gebouwen
Telephone +31 15 27 84481
Room 08.01OOST700

Dipl.ing. U.D. Hackauf

Unit Bouwkunde
Department Environmental Techn. & Design
Telephone +31 15 27 84430
Room 08.BG.West.170

Dr. M.E.A. Haffner

Unit Bouwkunde
Department Volkshuisvesting & Woningmarkt
Telephone +31 15 27 83523
Room 08.01.West.530

Ir. E.R. van den Ham

Unit Bouwkunde
Department Building Physics

Unit Bouwkunde
Department Building Physics

Dr.ir. M.G.A.D. Harteveld

Unit Bouwkunde
Department Stadsontwerp
Telephone +31 15 27 84430
Room 08.BG.West.170

Dipl.ing. B. Hausleitner

Unit	Bouwkunde
Department	Urban Compositions
Telephone	+31 15 27 84430
Room	08.BG.West.250

Unit	Bouwkunde
Department	Theorie en Methoden
Telephone	+31 15 27 84430
Room	08.BG.West.250

Unit	Bouwkunde
Department	Urban Compositions
Telephone	+31 15 27 84430
Room	08.BG.West.250

Dr.ir. K.M. Havik

Unit	Bouwkunde
Department	Methoden & Analyse
Room	08.01OOST700

Prof.ir. R.P.J. van Hees

Unit	Bouwkunde
Department	Heritage & Technology

Unit	Bouwkunde
Department	Heritage & Technology

Unit	Bouwkunde
Department	Heritage & Technology

Prof.dr.ir. A.C. den Heijer

Unit	Bouwkunde
Department	Real Estate Management
Telephone	+31 15 27 88853

Ir. L.G.C. Heijnders

Unit	Bouwkunde
Department	Praktijkdocenten
Room	08.01.West.700

Unit	Bouwkunde
Department	Real Estate Management
Room	08.01.West.700

Unit	Bouwkunde
Department	Real Estate Management
Room	08.01.West.700

Prof.dr.ing. C.M. Hein

Unit	Bouwkunde
Department	Architectuur & Stedenbouw Gesch
Telephone	+31 15 27 84192

Dr. J.L. Heintz

Unit	Bouwkunde
Department	Design & Constr. Management
Telephone	+31 15 27 87949
Room	08.01.West.700

Ir. A.W. Hermkens

Unit	Bouwkunde
Department	Heritage & Design
Telephone	+31 15 27 87719
Room	08.01WEST130

Dr.ir. E.W.T.M. Heurkens

Unit	Bouwkunde
Department	Urban Development Mgt.
Telephone	+31 15 27 81319
Room	08.01.West.700

Dr.mr. F.A.M. Hobma

Unit	Bouwkunde
Department	Building Law
Telephone	+31 15 27 83170

Dr. J.S.C.M. Hoekstra

Unit	Bouwkunde
Department	Volkshuisvesting & Woningmarkt
Telephone	+31 15 27 87562
Room	08.01.West.520

Dr.ir. F.D. van der Hoeven

Unit	Bouwkunde
Department	100% Research
Telephone	+31 15 27 88462
Room	08.BG.Oost.220

Unit	Bouwkunde
Department	Stadsontwerp
Telephone	+31 15 27 88462
Room	08.BG.Oost.220

Ir. J.J.J.G. Hoogenboom

Unit	Bouwkunde
Department	Design Informatics
Room	08.01.West.110

Dr. F.L. Hooimeijer

Unit	Bouwkunde
Department	Environmental Techn. & Design
Telephone	+31 15 27 84430
Room	08.BG.West.170

Dr. G.J. Hordijk

Unit	Bouwkunde
Department	Building Physics

Ir. C.J. Janssen

Unit	Bouwkunde
Department	Building Physics
Room	08.01+.West.230

Unit	Bouwkunde
Department	Building Physics
Room	08.01+.West.230

S. Janusz

Unit	Bouwkunde
Department	Praktijkdocenten

D.T. Jauslin

Unit	Bouwkunde
Department	Landschapsarchitectuur

Unit	Bouwkunde
Department	Landschapsarchitectuur

Mr.dr. P. Jong

Unit	Bouwkunde
Department	Building Law
Telephone	+31 15 27 83405
Room	08.01.West.700

Prof.ir. W. de Jonge

Unit	Bouwkunde
Department	Heritage & Design
Room	08.00OOST560

Dr.ir. B.M. Jurgenhake

Unit	Bouwkunde
Department	Woningbouw
Telephone	+31 15 27 84139
Room	08.01OOST700

T.E. Jylhä

Unit	Bouwkunde
Department	Real Estate Management

Prof.ir. C.H.C.F. Kaan

Unit	Bouwkunde
Department	Complexe projecten
Room	08.01OOST700

Prof.dr.ir. T. Klein

Unit	Bouwkunde
Department	Building Product Innovation
Telephone	+31 15 27 83098

Ir. O. Klijn

Unit	Bouwkunde
Department	Woningbouw
Telephone	+31 15 27 84491
Room	08.01OOST700

Prof.dr.ing. U. Knaack

Unit	Bouwkunde
Department	Architectural Eng. +Technology
Telephone	+31 15 27 88566
Room	08.01WEST110

Dr.ir. S. Komossa

Unit	Bouwkunde
Department	Publieke Gebouwen
Telephone	+31 15 27 84048
Room	08.01OOST700

Ir. J.S.J. Koolwijk

Unit	Bouwkunde
Department	Design & Constr. Management
Telephone	+31 15 27 89579
Room	08.01.West.700

Ir. F.W.A. Koopman

Unit	Bouwkunde
Department	Heritage & Technology
Telephone	+31 15 27 84133
Room	08.01WEST130

P.A. Koorstra

Unit	Bouwkunde
-------------	-----------

Department	Form and Modelling Studies
Telephone	+31 15 27 84683
Room	08.00ZUID080

Drs. P.W. Koppels

Unit	Bouwkunde
Department	Real Estate Management
Telephone	+31 15 27 88497
Room	08.01.West.700

Dr.mr. E. Korthals Altes

Unit	Bouwkunde
Department	Architectuur & Stedenbouw Gesch
Telephone	+31 15 27 84142
Room	08.01OOST700

Dr.ir. S. Kousoulas

Unit	Bouwkunde
Department	Architectuur Theorie

Unit	Bouwkunde
Department	Architectuur Theorie

Unit	Bouwkunde
Department	Architectuur Theorie

Unit	Bouwkunde
Department	Architectuur Theorie

Unit	Bouwkunde
Department	Docenten extern

Dr.ir. A. Koutamanis

Unit	Bouwkunde
Department	Design & Constr. Management
Telephone	+31 15 27 84957

Dr.ir. R.S. van der Kuij

Unit	Bouwkunde
Department	Housing Management
Telephone	+31 15 27 88852
Room	08.01.West.700

Unit	Bouwkunde
Department	Housing Systems
Telephone	+31 15 27 88852
Room	08.01.West.700

Unit	Bouwkunde
Department	Housing Management
Telephone	+31 15 27 88852
Room	08.01.West.700

Ir. P.A.M. Kuitenbrouwer

Unit	Bouwkunde
Department	Woningbouw
Telephone	+31 15 27 85257
Room	08.01.Oost.760

T.W. Kupers

Unit	Bouwkunde
Department	Praktijkdocenten

Unit	Bouwkunde
Department	Praktijkdocenten

Ing. S.R. Kurvers

Unit	Bouwkunde
Department	Indoor Environment
Room	08.01WEST130

Dr.ir. T. Kuzniecowa Bacchin

Unit	Bouwkunde
Department	Urban Compositions
Telephone	+31 15 27 84430
Room	08.BG.West.170

Unit	Bouwkunde
Department	Urban Compositions
Telephone	+31 15 27 84430
Room	08.BG.West.170

Unit	Civiele Techniek & Geowetensch
Department	Hydraulic Struc & Flood Risk
Telephone	+31 15 27 84430
Room	08.BG.West.170

Unit	Bouwkunde
Department	Environmental Techn. & Design
Telephone	+31 15 27 84430
Room	08.BG.West.170

V. Laszlo

Unit	Bouwkunde
Department	Digital Architecture
Telephone	+31 15 27 85954
Room	08.01WEST110

S. Lee

Unit	Bouwkunde
Department	Publieke Gebouwen
Telephone	+31 15 27 84192
Room	08.01OOST700

Q. Lei

Unit	Mech, Maritime & Materials Eng
Department	Robot Dynamics
Telephone	+31 15 27 81626

Unit	Mech, Maritime & Materials Eng
Department	Robot Dynamics
Telephone	+31 15 27 81626

Ir. F.D. van Loon

Unit	Bouwkunde
Department	Landschapsarchitectuur
Telephone	+31 15 27 84430
Room	08.BG.West.170

Dr.ir. L.H.M.J. Lousberg

Unit	Bouwkunde
Department	Design & Constr. Management
Telephone	+31 15 27 83049

Dr.ir. P.C. Louter

Unit	Bouwkunde
Department	Structural Design

Unit	Bouwkunde
Department	Krachtenwerking in gebouwen
Room	-

Unit	Civiele Techniek & Geowetensch
Department	Gebouwen en Civieltech Constr
Room	-

Ir. M. Lub

Unit	Bouwkunde
Department	Urban Compositions
Telephone	+31 15 27 84430
Room	08.BG.West.250

Dr. B. Lubelli

Unit	Bouwkunde
Department	Heritage & Technology
Telephone	+31 15 27 81004
Room	08.01WEST130

Ir. J.H. L uchinger

Unit	Bouwkunde
Department	Praktijkdocenten

Unit	Bouwkunde
Department	Docenten extern

Unit	Bouwkunde
Department	Docenten extern

Unit	Bouwkunde
Department	Praktijkdocenten

Prof.ir. W.G.M. Maas

Unit	Bouwkunde
Department	The Why Factory
Telephone	+31 15 27 88948
Room	08.00WEST250

Dr. C. Maat

Unit	Bouwkunde
Department	Stedelijke & Regionale Ontwikk
Telephone	+31 15 27 87640
Room	08.BG.West.740

Unit	Techniek, Bestuur & Management
Department	Transport and Logistics
Telephone	+31 15 27 87640
Room	08.BG.West.740

F.M. Madrazo Salazar

Unit	Bouwkunde
Department	Praktijkdocenten

Unit	Bouwkunde
Department	Praktijkdocenten

Unit	Bouwkunde
Department	The Why Factory

S.S. Mandias

Unit	Bouwkunde
Department	Interieur

Unit	Bouwkunde
Department	Praktijkdocenten

Unit	Bouwkunde
Department	Interieur

Unit	Bouwkunde
Department	Support Architecture

Unit	Bouwkunde
Department	Interieur

Dr. C.L. Martin

Unit	Bouwkunde
Department	Climate Des. & Sustainability

N. Marzot

Unit	Bouwkunde
Department	Publieke Gebouwen

Ir. W.L.E.C. Meijers

Unit	Bouwkunde
Department	Heritage & Design
Telephone	+31 15 27 87737
Room	08.01.West.130

J.A. Mejia Hernandez

Unit	Bouwkunde
Department	Methoden & Analyse

Unit	Bouwkunde
Department	Publieke Gebouwen

Unit	Bouwkunde
Department	Architectonische Compositie
Room	-

Unit	Bouwkunde
Department	Publieke Gebouwen
Room	-

T. Merkeley

Unit	Bouwkunde
Department	Complexe projecten

Unit	Bouwkunde
Department	Docenten extern

Unit	Bouwkunde
Department	Docenten extern

S. Milani

Unit	Bouwkunde
Department	Publieke Gebouwen
Telephone	+31 15 27 85168
Room	08.01OOST700

Dr.ir. E. Mlecnik

Unit	Bouwkunde
Department	Housing Management
Telephone	+31 15 27 89869

Ir. H.A.F. Mooij

Unit	Bouwkunde
Department	Woningbouw

S.S. Mostafavi

Unit	Bouwkunde
Department	Digital Architecture
Telephone	+31 15 27 85954
Room	08.01WEST110

Unit	Bouwkunde
Department	Digital Architecture
Telephone	+31 15 27 85954

Room	08.01WEST110
Unit Department	Bouwkunde Digital Architecture
Telephone Room	+31 15 27 85954 08.01WEST110
Unit Department	Bouwkunde Digital Architecture
Telephone Room	+31 15 27 85954 08.01WEST110
Unit Department	Bouwkunde Digital Architecture
Telephone Room	+31 15 27 85954 08.01WEST110

Prof. V. Nadin

Unit Department	Bouwkunde Urbanism
Telephone	+31 15 27 84430

Dr. I. Nase

Unit Department	Bouwkunde Real Estate Management
Room	08.01+.West.630

Dr. A. van Nes

Unit Department	Bouwkunde Ruimt. Planning & Strategie
Telephone	+31 15 27 84430

Dr. I. Nevzgodin

Unit Department	Bouwkunde Heritage & Cultural Value
Telephone Room	+31 15 27 81116 08.01WEST130

Dr.ing. S. Nijhuis

Unit Department	Bouwkunde Landschapsarchitectuur
Telephone Room	+31 15 27 84430 08.BG.West.170

Prof.ir. R. Nijssse

Unit Department	Bouwkunde Structural Design
Telephone Room	+31 15 27 85488 23.S2 1.36
Unit Department	Bouwkunde Structural Design
Telephone Room	+31 15 27 85488 23.S2 1.36
Unit Department	Civiele Techniek & Geowetensch Applied Mechanics
Telephone Room	+31 15 27 85488 23.S2 1.36

Dr.ir. P. Nourian

Unit Department	Bouwkunde Design Informatics
Room	08.01.West.010
Unit Department	Bouwkunde Design Informatics

Room	08.01.West.010
Unit	Bouwkunde
Department	Stadsontwerp
Room	08.01.West.010
Unit	Bouwkunde
Department	3D Geo-information
Room	08.01.West.010
Unit	Bouwkunde
Department	Design Informatics
Room	08.01.West.010
Unit	Bouwkunde
Department	Design Informatics
Room	08.01.West.010

Dr. C.J. van Oel

Unit	Bouwkunde
Department	Housing Management
Telephone	+31 15 27 83938
Room	08.01.West.700

F. Oikonomopoulou

Unit	Bouwkunde
Department	Structural Mechanics
Unit	Bouwkunde
Department	Structural Mechanics

M.A. Ortiz Sanchez

Unit	Bouwkunde
Department	Indoor Environment
Room	08.01+.West.210

Ir. R.R.J. van de Pas

Unit	Bouwkunde
Department	Architectural Engineering
Unit	Bouwkunde
Department	Praktijkdocenten
Room	-

D. Piccinini

Unit	Bouwkunde
Department	Landschapsarchitectuur
Telephone	+31 15 27 84430
Room	08.BG.West.170

Ir. S. Pietsch

Unit	Bouwkunde
Department	Interieur

Dr.ir. M.M.E. Pijpers-Esch

Unit	Bouwkunde
Department	Environmental Techn. & Design
Telephone	+31 15 27 84430
Room	08.BG.West.170
Unit	Bouwkunde
Department	Environmental Techn. & Design
Telephone	+31 15 27 84430
Room	08.BG.West.170
Unit	Bouwkunde
Department	Environmental Techn. & Design

Telephone Room +31 15 27 84430
08.BG.West.170

Unit Department Bouwkunde
Praktijkdocenten
Telephone Room +31 15 27 84430
08.BG.West.170

M. Pimlott

Unit Department Bouwkunde
Interieur

Dr.ir. M. Prins

Unit Department Bouwkunde
Design & Constr. Management
Telephone +31 15 27 84170

Ir. P.S. van der Putt

Unit Department Bouwkunde
Woningbouw
Telephone Room +31 15 27 84491
08.01OOST700

P.S. van der Putt

L. Qu

Unit Department Bouwkunde
Ruimt. Planning & Strategie
Telephone Room +31 15 27 84430
08.BG.West.170

Dr.ir. W.J. Quist

Unit Department Bouwkunde
Heritage & Technology
Telephone Room +31 15 27 88496
08.01.West.010

Dr.ir. A. Radman

Unit Department Bouwkunde
Architectuur Theorie
Telephone Room +31 15 27 81830
08.00OOST410

A.B.O. Ravon

Unit Department Bouwkunde
The Why Factory
Telephone Room +31 15 27 87626
08.BG.West.250

Unit Department Bouwkunde
Woningbouw
Telephone Room +31 15 27 87626
08.BG.West.250

Unit Department Bouwkunde
The Why Factory
Telephone Room +31 15 27 87626
08.BG.West.250

Unit Department Bouwkunde
The Why Factory
Telephone Room +31 15 27 87626
08.BG.West.250

Unit Department Bouwkunde
The Why Factory
Telephone Room +31 15 27 87626
08.BG.West.250

Dr. S.A. Read

Unit	Bouwkunde
Department	Ruimt. Planning & Strategie
Telephone	+31 15 27 84430
Room	08.BG.West.170

Dr. H.T. Remoy

Unit	Bouwkunde
Department	Real Estate Management
Telephone	+31 15 27 81335
Room	08.01.West.700

Ir. A.T. Richters

Unit	Bouwkunde
Department	Praktijkdocenten

Unit	Bouwkunde
Department	Praktijkdocenten

Ir. A.C. de Ridder

Unit	Bouwkunde
Department	Heritage & Design
Room	08.01WEST130

A.C. de Ridder

Unit	Elektrotechn., Wisk. & Inform.
Department	Microwave Sens., Sign. & Syst.

Unit	Elektrotechn., Wisk. & Inform.
Department	IRCTR

Unit	Elektrotechn., Wisk. & Inform.
Department	MTRSARadar

Unit	Elektrotechn., Wisk. & Inform.
Department	Microwave Sens., Sign. & Syst.

RC Rocco

R.C. Rocco de Campos Pereira

Unit	Bouwkunde
Department	Ruimt. Planning & Strategie
Telephone	+31 15 27 84430

Dr. A. Romein

Unit	Bouwkunde
Department	Stedelijke & Regionale Ontwikk
Telephone	+31 15 27 87139

O.R.G. Rommens

Unit	Bouwkunde
Department	Publieke Gebouwen
Telephone	+31 15 27 84192
Room	08.01OOST700

Dr.ir. R.M. Rooij

Unit	Bouwkunde
Department	Ruimt. Planning & Strategie
Telephone	+31 15 27 84166
Room	08.BG.Oost.150

Ir. J. Roos

Unit	Bouwkunde
Department	Heritage & Design

Telephone	+31 15 27 81116
Room	08.01.West.130

Prof. D.J. Rosbottom

Unit	Bouwkunde
Department	Interieur
Room	08.01.Oost.700

Dr. R.J. Rutte

Unit	Bouwkunde
Department	Architectuur & Stedenbouw Gesch
Telephone	+31 15 27 84142
Room	08.01OOST700

Prof.dr.ir. I.S. Sariyildiz

Unit	Bouwkunde
Department	Design Informatics
Telephone	+31 15 27 85997
Room	08.01WEST130

Dr.ir. M.G.H. Schoonderbeek

Unit	Bouwkunde
Department	Publieke Gebouwen
Telephone	+31 15 27 84210
Room	08.01OOST700

Ir. drs. E.P.N. Schreurs

Unit	Bouwkunde
Department	Interieur
Room	-

Ir. R. Schroën

Unit	Bouwkunde
Department	Architectural Engineering

Unit	Bouwkunde
Department	Docenten extern

Dr. D.A. Sepulveda Carmona

Unit	Bouwkunde
Department	Ruimt. Planning & Strategie
Telephone	+31 15 27 84430
Room	08.BG.West.170

Ir. H. Smidihen

Unit	Bouwkunde
Department	Praktijkdocenten

Unit	Bouwkunde
Department	Praktijkdocenten

Ir. M.J. Smit

Unit	Bouwkunde
Department	Architectural Engineering

Unit	Bouwkunde
Department	Praktijkdocenten

Ir. J.E.P. Smits

Unit	Bouwkunde
Department	Structural Design
Room	08.01+.West.130

Dr.ir. H. Sohn

Unit	Bouwkunde
Department	Architectuur Theorie
Telephone	+31 15 27 81830
Room	08.00OOST410

D.H.G. Somers

Unit	Bouwkunde
Department	Interieur
Telephone	+31 15 27 84208

Y. Song

Unit	Bouwkunde
Department	Environmental Techn. & Design
Room	08.BG.West.030

Dr.ir. M. Spaans

Unit	Bouwkunde
Department	Stedelijke & Regionale Ontwikk
Telephone	+31 15 27 82987
Room	08.00WEST530

Dr.ir. S.C. van der Spek

Unit	Bouwkunde
Department	Stadsontwerp
Telephone	+31 15 27 89860

Ir. L.G.K. Spoormans

Unit	Bouwkunde
Department	Heritage & Design
Room	08.01WEST130

Dr. D. Stead

Unit	Bouwkunde
Department	Ruimt. Planning & Strategie
Telephone	+31 15 27 87116
Room	08.BG.West.720

Dr.ir. M.C. Stellingwerff

Unit	Bouwkunde
Department	Vormstudie
Telephone	+31 15 27 84683
Room	08.00ZUID080

Ir. A. van Stijn

Unit	Bouwkunde
Department	Housing Management
Telephone	+31 15 27 84430

Unit	Bouwkunde
Department	Housing Management
Telephone	+31 15 27 84430

Unit	Bouwkunde
Department	Support Urbanism
Telephone	+31 15 27 84430

Unit	Bouwkunde
Department	Support Urbanism
Telephone	+31 15 27 84430

Dr.ir. E.H. Stolk

Unit	Bouwkunde
Department	Environmental Techn. & Design

Telephone Room +31 15 27 84430
08.BG.West.170

Dr.ir. P.L.M. Stouten

Unit Department Bouwkunde
Urban Compositions
Telephone Room +31 15 27 84430
08.BG.West.170

Dr. S.A. Stroux

Unit Department Bouwkunde
Heritage & Cultural Value
Room 08.01.West.130

Ir. M.E. Stuhlmacher

Unit Department Bouwkunde
Interieur
Telephone Room +31 15 27 89536
08.01OOST700

Dr.ir. P.J. Teerds

Unit Department Bouwkunde
Methoden & Analyse
Telephone Room +31 15 27 84481
08.01.Oost.700

Unit Department Bouwkunde
Methoden & Analyse
Telephone Room +31 15 27 84481
08.01.Oost.700

Ir. P.G. Teeuw

Unit Department Bouwkunde
Climate Des. & Sustainability
Telephone Room +31 15 27 84128
08.01WEST130

Dr.ir. M.J. Tenpierik

Unit Department Bouwkunde
Building Physics
Telephone Room +31 15 27 84411
08.01WEST130

Dr. M.T.A. van Thoor

Unit Department Bouwkunde
Heritage & Cultural Value
Telephone Room +31 15 27 81116
08.01WEST130

Ir. N.M.J.D. Tillie

Unit Department Bouwkunde
Landschapsarchitectuur
Telephone Room +31 15 27 84430
08.BG.West.170

Ir. O.G.C. Trienekens

Unit Department Bouwkunde
Support Urbanism
Telephone Room +31 15 27 81996
08.BG.West.170

Unit Department Bouwkunde
Docenten extern
Telephone Room +31 15 27 81996
08.BG.West.170

M. Triggianese

Unit	Bouwkunde
Department	Complexe projecten

Unit	Bouwkunde
Department	Complexe projecten

Unit	Bouwkunde
Department	Complexe projecten

Unit	Bouwkunde
Department	Complexe projecten

Dr. M. Turrin

Unit	Bouwkunde
Department	Design Informatics
Room	08.01+.West.010

Unit	Bouwkunde
Department	Techn Ontwerp & Informatica
Room	08.01+.West.010

Unit	Bouwkunde
Department	Design Informatics
Room	08.01+.West.010

Unit	Bouwkunde
Department	Design Informatics
Room	08.01+.West.010

Unit	Bouwkunde
Department	Design Informatics
Room	08.01+.West.010

Ir. H.J.M. Vande Putte

Unit	Bouwkunde
Department	Real Estate Management
Telephone	+31 15 27 83056

Prof.dr. W.A.J. Vanstiphout

Unit	Bouwkunde
Department	Design and Politics
Telephone	+31 15 27 84430

Dr.ir. F.A. Veer

Unit	Bouwkunde
Department	Structural Mechanics
Telephone	+31 15 27 81358
Room	26.B2.070

J.R.T. van der Velde

Unit	Bouwkunde
Department	Landschapsarchitectuur
Telephone	+31 15 27 84430

Dr. W.J. Verheul

Unit	Bouwkunde
Department	Urban Development Mgt.
Telephone	+31 15 27 81955
Room	08.01.West.700

Ir. G.A. Verschuure-Stuip

Unit	Bouwkunde
Department	Landschapsarchitectuur
Telephone	+31 15 27 84082
Room	08.BG.West.030

Ir. D.R. Visser

Unit	Bouwkunde
Department	Structural Design

Unit	Bouwkunde
Department	Praktijkdocenten

Dr.ir. L. Volker

Unit	Bouwkunde
Department	Publiek Opdrachtgeverschap
Room	08.01.West.700

A. van Waart

Unit	Bouwkunde
Department	Inform. & Commun. Techn.

Unit	Bouwkunde
Department	Inform. & Commun. Techn.

Unit	Bouwkunde
Department	Praktijkdocenten

Dr. C. Wagenaar

Unit	Bouwkunde
Department	Architectuur & Stedenbouw Gesch
Telephone	+31 15 27 84191
Room	08.01.Oost.700

Ing. R.J.G. van Warmerdam

Unit	Bouwkunde
Department	Design & Constr. Management
Telephone	+31 15 27 83881

Drs. C.A. van Wijk

Unit	Bouwkunde
Department	Architectuur & Stedenbouw Gesch
Telephone	+31 15 27 88797
Room	08.01OOST700

L.A.M. Willekens

Unit	Bouwkunde
Department	Complexe Projecten
Room	08.01.Oost.700

Ir. W. Willers

Unit	Bouwkunde
Department	Heritage & Design
Telephone	+31 15 27 87780
Room	08.01WEST130

Dr.ir. W.W.L.M. Wilms Floet

Unit	Bouwkunde
Department	Methoden & Analyse
Telephone	+31 15 27 89310
Room	08.01OOST700

Ir. L.M.M. de Wit

Unit	Bouwkunde
Department	Interieur

Dr.ir. S.I. de Wit

Unit	Bouwkunde
Department	Landschapsarchitectuur

Telephone +31 15 27 84430
Room 08.BG.West.170

Ir. H.W. de Wolff

Unit Bouwkunde
Department Geo-informatie en Grondbeleid
Telephone +31 15 27 83668
Room 08.BG.West.700

Ir. J.S. Zeinstra

Unit Bouwkunde
Department Interieur
Room 08.01OOST700

Dr.ir. H. Zijlstra

Unit Bouwkunde
Department Heritage & Design
Telephone +31 15 27 81116

Dr.ir. S. Zijlstra

Unit Bouwkunde
Department Housing Management
Telephone +31 15 27 87350
Room 08.01.West.700
