

Curriculum CEM/CME 2020-2021

Construction Management and Engineering			Transport Engineering and Management			Water Engineering and Management			Integrated Civil Engineering Systems			Integrated Civil Engineering Systems					
PROFILES			PROFILES			PROFILES			PROFILES			PROFILES					
Markets & Organization of Construction			Integrated Urban Transport			Integrated Water Management			Civil Engineering Structures			Modelling and Forecasting					
Profile Courses (minimum 30 EC)	EC	Quartile	Profile Courses (minimum 30 EC)	EC	Quartile	Profile Courses (minimum 30 EC)	EC	Quartile	Profile Courses (minimum 30 EC)	EC	Quartile	Profile Courses (minimum 30 EC)	EC	Quartile			
Research Methodology & Academic Skills (compulsory)	5	2	Transport Research Project (compulsory)	5	any	Water Footprint Assessment	5	1	Legal & Governance Aspects	5	1	Statistics and probability (IEM)	5	1			
Legal & Governance Aspects	5	1	Planning & Process Management	5	1	Hydrology	5	1	Sustainability and Circularity in Civil Engineering	5	1	Simulation (IEM)	5	1	Simulation (IEM)	5	1
Planning & Process Management	5	1	GIS for Transport (ITC)	5	1	Water and Energy	5	2	Morphology (Year 2; check Osiris for prerequisites)	5	2	Research Methodology & Academic Skills	5	2	Research Methodology & Academic Skills	5	2
Sustainability and Circularity in Civil Engineering	5	1	Sustainable Transport	5	2	Hydrological Modelling and Forecasting	5	2	Research Methodology & Academic Skills	5	2	Data Analysis in Water Engineering and Management	5	2	Data Analysis in Water Engineering and Management	5	2
Construction Industry Dynamics	5	2	Empirical Methods for Designers (IDE)	5	2	Urban Resilience in a Changing Climate	5	3	Advanced Soil Mechanics	5	3	Hydrological Modelling and Forecasting	5	2	Hydrological Modelling and Forecasting	5	2
Construction Process Management	5	2	Public Transport Modelling	5	3	Water and Climate	5	4	Hydraulic Engineering	5	3	Mathematical optimization in Transport	5	2	Mathematical optimization in Transport	5	2
Systems Engineering in Construction	5	3	Traffic Safety (2020-2021)	5	4				Geo Risk Management	5	4	Data Science (CSC)	5	2 or 3	Data Science (CSC)	5	2 or 3
Infrastructure Asset Management	5	4	Land Use and Transport Interactions (ITC; check Osiris for prerequisites)	5	4												
Profile Electives - Free to choose any of the CEM courses offered (pay attention to the required prior knowledge) - Below: list of CEM-courses that fit best in this profile (in addition to profile courses) - On the CE Canvas site: courses from other programmes that fit in this profile (If you include courses from other programmes, we recommend you to make a selection, such that the majority of the programme is still formed by CEM-courses)			Profile Electives - Free to choose any of the CEM-courses (pay attention to the required prior knowledge) - Below: list of CEM-courses that fit best in this profile (in addition to profile courses) - On the CE Canvas site: courses from other programmes that fit in this profile (If you include courses from other programmes, we recommend you to make a selection, such that the majority of the programme is still formed by CEM-courses)			Profile Electives - Free to choose any of the CEM courses on offer (pay attention to the required prior knowledge) - Below: list of CEM-courses that fit best in this profile (in addition to profile courses) - On the CE Canvas site: courses from other programmes that fit in this profile (If you include courses from other programmes, we recommend you to make a selection, such that the majority of the programme is still formed by CEM-courses)			Profile Electives - Free to choose any of the CEM-courses (pay attention to the required prior knowledge) - Below: list of CEM-courses that fit best in this profile (in addition to profile courses) - On the CE Canvas site: courses from other programmes that fit in this profile (If you include courses from other programmes, we recommend you to make a selection, such that the majority of the programme is still formed by CEM-courses)			Profile Electives - Free to choose any of the CEM-courses (pay attention to the required prior knowledge) - Below: list of CEM-courses that fit best in this profile (in addition to profile courses) - On the CE Canvas site: courses from other programmes that fit in this profile (If you include courses from other programmes, we recommend you to make a selection, such that the majority of the programme is still formed by CEM-courses)					
Construction Supply Chains and Digitization	5	1	Simulation (IEM)	5	1	Water Quality	5	1	BIM and 5D Planning	5	2	Hydrology	5	1	Hydrology	5	1
Safety by Design for Products, Equipment and Systems (IDE)	5	2	Traffic Operations	5	1	River Flow Processes	5	1	Data Analysis in Water Engineering and Management	5	2	Long Waves and Tidal Morphodynamics	5	1	Long Waves and Tidal Morphodynamics	5	1
Procurement Strategies and Tendering	5	2	Network Modelling and Forecasting	5	2	Data Analysis in Water Engineering and Management	5	2	Mathematical Physics of Water Systems	5	3	Short Waves and Coastal Dynamics	5	1	Short Waves and Coastal Dynamics	5	1
Transition to Circular Building Construction (with reservation)	5	3	Mathematical optimization in Transport	5	2	Systems Engineering in Construction	5	3	Systems Engineering in Construction	5	3	Traffic Operations	5	1	Traffic Operations	5	1
Urban Resilience in a Changing Climate	5	3	Rail Transport	5	2	Hydraulic Engineering	5	3	Subsurface Infrastructure Engineering	5	4	Morphology (check Osiris for prerequisites)	5	2	Morphology (check Osiris for prerequisites)	5	2
Value Management	5	4	Data Science I (CSC)	5	2 or 3	Building with Nature	5	4			Empirical Methods for Designers (IDE)	5	2	Empirical Methods for Designers (IDE)	5	2	
Culture in Construction	5	4	Intelligent Transport Systems (IDE)	5	3						BIM and 5D Planning	5	2	BIM and 5D Planning	5	2	
			Transport & Logistics (IEM)	5	3						Mathematical Physics of Water Systems	5	3	Mathematical Physics of Water Systems	5	3	
			Traffic Management	5	3						Hydraulic Modelling	5	3	Hydraulic Modelling	5	3	
			Infrastructure Asset Management	5	4						Public Transport Modelling	5	3	Public Transport Modelling	5	3	
											Traffic Management	5	3	Traffic Management	5	3	
											Simulation and Optimization of Construction Processes	5	3	Simulation and Optimization of Construction Processes	5	3	
											River Morphodynamics	5	4	River Morphodynamics	5	4	
											Subsurface Infrastructure Engineering	5	4	Subsurface Infrastructure Engineering	5	4	
Digital Technologies in Construction			Transport and Logistics			River and Coastal Engineering			Sustainability			Smart Cities					
Profile Courses (minimum 30 EC)	EC	Quartile	Profile Courses (minimum 30 EC)	EC	Quartile	Profile Courses (minimum 30 EC)	EC	Quartile	Profile Courses (30 EC)	EC	Quartile	Profile Courses (30 EC)	EC	Quartile			
Research Methodology & Academic Skills (compulsory)	5	2	Transport Research Project (compulsory)	5	any	River Flow Processes	5	1	Water Footprint Assessment	5	1	Planning & Process Management	5	1	Planning & Process Management	5	1
Legal & Governance Aspects	5	1	Simulation (IEM)	5	1	Long Waves and Tidal Morphodynamics	5	1	Sustainability and Circularity in Civil Engineering	5	1	Sustainability and Circularity in Civil Engineering	5	1	Sustainability and Circularity in Civil Engineering	5	1
Planning & Process Management	5	1	Traffic Operations	5	1	Short Waves and Coastal Dynamics	5	1	Planning & Process Management	5	1	Research Methodology & Academic Skills	5	2	Research Methodology & Academic Skills	5	2
Construction Industry Dynamics	5	2	Network Modelling and Forecasting	5	2	Advanced Research Skills in River and Coastal Engineering	5	2	Research Methodology & Academic Skills	5	2	Sustainable Transport	5	2	Sustainable Transport	5	2
Construction Process Management	5	2	Mathematical Optimization in Transport	5	2	Morphology (Year 2; check Osiris for prerequisites)	5	2	Water and Energy	5	2	Urban Resilience in a Changing Climate	5	3	Urban Resilience in a Changing Climate	5	3
Systems Engineering in Construction	5	3	Intelligent Transport Systems (IDE)	5	3	Mathematical Physics of Water Systems	5	3	Sustainable Transport	5	2	Land Use and Transport Interactions (ITC; check Osiris for prerequisites)	5	4	Land Use and Transport Interactions (ITC; check Osiris for prerequisites)	5	4
Digital Technologies for Civil Engineering	5	3	Data Science I (CSC)	5	2 or 3	Hydraulic Modelling	5	3	Urban Resilience in a Changing Climate	5	3						
Technology and Innovation in Road Construction	5	4	Public Transport Modelling	5	3	River Morphodynamics	5	4									
			Transport & Logistics (IEM)	5	3												
			Traffic Management	5	3												
Profile Electives - Free to choose any of the CEM courses offered (pay attention to the required prior knowledge) - Below: list of CEM-courses that fit best in this profile (in addition to profile courses) - On the CE Canvas site: courses from other programmes that fit in this profile (If you include courses from other programmes, we recommend you to make a selection, such that the majority of the programme is still formed by CEM-courses)			Profile Electives - Free to choose any of the CEM-courses (pay attention to the required prior knowledge) - Below: list of CEM-courses that fit best in this profile (in addition to profile courses) - On the CE Canvas site: courses from other programmes that fit in this profile (If you include courses from other programmes, we recommend you to make a selection, such that the majority of the programme is still formed by CEM-courses)			Profile Electives - Free to choose any of the CEM courses on offer (pay attention to the required prior knowledge) - Below: list of CEM-courses that fit best in this profile (in addition to profile courses) - On the CE Canvas site: courses from other programmes that fit in this profile (If you include courses from other programmes, we recommend you to make a selection, such that the majority of the programme is still formed by CEM-courses)			Profile Electives - Free to choose any of the CEM courses offered (pay attention to the required prior knowledge) - Below: list of CEM-courses that fit best in this profile (in addition to profile courses) - On the CE Canvas site: courses from other programmes that fit in this profile (If you include courses from other programmes, we recommend you to make a selection, such that the majority of the programme is still formed by CEM-courses)			Profile Electives - Free to choose any of the CEM courses offered (pay attention to the required prior knowledge) - Below: list of CEM-courses that fit best in this profile (in addition to profile courses) - On the CE Canvas site: courses from other programmes that fit in this profile (If you include courses from other programmes, we recommend you to make a selection, such that the majority of the programme is still formed by CEM-courses)					
Sustainability and Circularity in Civil Engineering	5	1	GIS for Transport (ITC)	5	1	Water Quality	5	1	Legal & Governance Aspects	5	1	Water Footprint Assessment	5	1	Water Footprint Assessment	5	1
Construction Supply Chains and Digitization	5	1	Planning and Process Management	5	1	Hydrology	5	1	Public Transport Modelling	5	3	Public Transport Modelling	5	3	Water and Energy	5	2
BIM and 5D Planning	5	2	Sustainable Transport	5	2	Data Analysis in Water Engineering and Management	5	2	Land Use and Transport Interactions (ITC) check Osiris for prerequisites	5	4	Data Science (CSC)	5	2 or 3	Data Science (CSC)	5	2 or 3
Safety by Design for Products, Equipment and Systems (IDE)	5	2	Rail Transport	5	2	Hydrological Modelling and Forecasting	5	2	Value Management	5	4	Public Transport Modelling	5	3	Public Transport Modelling	5	3
Simulation and Optimization of Construction Processes	5	3	Empirical Methods for Designers (IDE)	5	2	Hydraulic Engineering	5	3	Systems Engineering in Construction	5	3	Traffic Management	5	3	Traffic Management	5	3
Value Management	5	4	Traffic Safety (2020-2021)	5	4	Advanced Soil Mechanics	5	3	Infrastructure Asset Management	5	4	Value Management	5	4	Value Management	5	4
Subsurface Infrastructure Engineering	5	4	Land Use and Transport Interactions (ITC; check Osiris for prerequisites)	5	4	Building with Nature	5	4	Water and Climate	5	4	BIM and 5D Planning	5	2	BIM and 5D Planning	5	2
Infrastructure Asset Management	5	4	Infrastructure Asset Management	5	4	Water and Climate	5	4	Building with Nature	5	4	Systems Engineering in Construction	5	3	Systems Engineering in Construction	5	3
											Subsurface Infrastructure Engineering	5	4	Subsurface Infrastructure Engineering	5	4	
											Infrastructure Asset Management	5	4	Infrastructure Asset Management	5	4	
GENERAL COURSES			GENERAL COURSES			GENERAL COURSES			GENERAL COURSES			GENERAL COURSES					
Free Electives (max 15 EC)	EC	Quartile	Free Electives (max 15 EC)	EC	Quartile	Free Electives (max 15 EC)	EC	Quartile	Free Electives (max 15 EC)	EC	Quartile	Free Electives (max 15 EC)	EC	Quartile			
Any course from UT or approved other university*			Any course from UT or approved other university*			Any course from UT or approved other university*			Any course from UT or approved other university*			Any course from UT or approved other university*					
Thesis **	EC	Quartile	Thesis **	EC	Quartile	Thesis **	EC	Quartile	Thesis **	EC	Quartile	Thesis **	EC	Quartile			
Preparation Master Thesis	5	-	Preparation Master Thesis	5	-	Preparation Master Thesis	5	-	Preparation Master Thesis	5	-	Preparation Master Thesis	5	-			
Master Thesis Construction	30	-	Master Thesis Traffic	30	-	Master Thesis Water	30	-	Master Thesis Construction/Traffic/Water	30	-	Master Thesis Construction/Traffic/Water	30	-			
PLANNING AND CONSULTATION FOR THE MASTER PROFILES			PLANNING AND CONSULTATION FOR THE MASTER PROFILES			PLANNING AND CONSULTATION FOR THE MASTER PROFILES			PLANNING AND CONSULTATION FOR THE MASTER PROFILES			PLANNING AND CONSULTATION FOR THE MASTER PROFILES					
Track-coordinator: drs. ing. Hans Boes Coordinator Master Thesis: dr. ir. Robin de Graaf			Track-coordinator: prof. dr. ir. Eric van Berkum Coordinator Master Thesis: prof. dr. ir. Eric van Berkum			Track-coordinator: dr. Jord Warmink (from 1/9/2020: dr. ir. Michiel Pezij) Coordinator Master Thesis: dr. ir. Martijn Booij			Track-coordinator: dr. Jord Warmink Coordinator Master Thesis: coordinators from CME, TEM or WEM			Track-coordinator: dr. Jord Warmink Coordinator Master Thesis: coordinators from CME, TEM or WEM					

* an "approved university" is any university in The Netherlands (not HBO-schools), or any international university that is partner of the UT or of the faculty of ET.
[Click here for a list of partner universities](#)
 For courses from other universities: contact your track-coordinator.
 The Free Electives should be at MSc-level and should have no overlap with other courses in your programme.

** [Click here for the procedure of how to start the course Preparation MSc-thesis and your MSc-thesis project](#)