

# Master programme Civil Engineering and Management

Construction Management and Engineering			Transport Engineering and Management			Water Engineering and Management			Integrated Civil Engineering Systems																				
PROFILES			Transport Planning and Modeling			Integrated Water Management			Civil Engineering Structures			Modeling and Forecasting																	
<b>Markets and Organization in Construction</b> <b>Profile Courses (minimum 30 EC)</b> Research Methodology & Academic Skills (mand.) 195820400 at least 3 of the following 4 courses: Planning and Process Management 201500097 Legal & Governance Aspects 195800100 Project Management 195802020 Collaborative Design & Engineering 195800400			EC	Quartile	<b>Transport Planning and Modeling</b> <b>Profile Courses (minimum 30 EC)</b> Transport Research Project (mandatory) 201100009 at least 3 of the following 4 courses: Planning and Process Management 201500097 Transport Modeling 201100008 Land Use and Transport Interactions 201000025 Sustainable Transport 195420800			EC	Quartile	<b>Integrated Water Management</b> <b>Profile Courses (minimum 30 EC)</b> at least 4 of the following 5 courses: Hydrology 195400100 Water Footprint Assessment 201400010 Design Project Water II 195400500 Tools for Water Policy Analysis 195400600 Integrated Water Management 195400300			EC	Quartile	<b>Civil Engineering Structures</b> <b>Profile Courses (30 EC)</b> Sustainable Building 195810400 Morphology 195410200 Research Meth. & Aca. Skills 195820400 Geo Risk Management 195820300 Hydraulic Engineering 195410300 } choose one			EC	Quartile	<b>Modeling and Forecasting</b> <b>Profile Courses (minimum 30 EC)</b> Transport Modeling Design Project Water II Tools for Water Policy Analysis Mathematical Optimization in Transport Mathematical Physics of Water Systems Transport Research Project Morphology (pr.know: Marine Dynamics) } choose one			EC	Quartile					
<b>Profile Electives</b> - Free to choose any of the 35 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) - Below: 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)			7,5	2	<b>Profile Electives</b> - Free to choose any of the 35 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) - Below: 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)			7,5	any	<b>Profile Electives</b> - Free to choose any of the 35 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) - Below: 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)			7,5	1	<b>Profile Electives</b> - Free to choose any of the 35 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) - Below: 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)			7,5	2										
Supply Chain Management & ICT 193801000 Markets, Organizations & Innovation 195810100 Procurement Strat&Tend (pr.know: Project Man.) 201000095 Industrialization & Innovation in Construction 195810310 Infrastructure Management 195820500			7,5	1	Legal & Governance Aspects 195800100 Public Transport in urban areas 201600131 Data Science (CSC) + assignment 201400174 Mathematical Optimization in Transport 201100012 Infrastructure Management 195820500			7,5	1	Water Systems 201300077 Legal & Governance Aspects 195800100 Planning and Process Management 201500097 Data Analysis in Water Eng. & Management 195410100 Collaborative Design & Engineering 195800400 Infrastructure Management 195820500			7,5	1	Design Project Water II 195400500 Data Analysis in Water Engineering & Man. 195410100 Mathematical Physics of Water Systems 195400900 Collaborative Design & Engineering 195800400 Building Information Modeling & SD Planning 195820600			7,5	2	Hydrology Marine Dynamics (prior knowledge: Math.Physics of WS) Traffic Operations Data Analysis in Water Engineering & Management Morphology (prior knowledge: Marine Dynamics) Data Science (EWI) + assignment Building Information Modeling & SD Planning Traffic Management River Dynamics (prior knowledge: Math.Physics of WS) Statistics and Probability (IEM) Numerical Methods in ME (ME; prior knowledge: Intro FE) Linear Solid Mechanics (ME) Nonlinear Solid Mechanics (ME; prior knowledge: linear SM) Dynamics 2 & risk (mod & WB) Structural Health and Condition Monitoring (ME) Failure Mechanisms & Life Prediction (ME) Data Science (EWI)			7,5	1	Discrete Optimization (AM) Optimization Modeling (AM) Scientific Computing (AM) Introduction to Finite Elements (part mod11 WB) Theory of Partial Differential Equations (AM) Applied Finite Elements for PDE (AM)			7,5	2
<b>Design Management in Construction</b> <b>Profile Courses (minimum 30 EC)</b> Research Methodology & Academic Skills (mand.) 195820400 at least 3 of the following 4 courses: Planning and Process Management 201500097 Legal & Governance Aspects 195800100 Project Management 195802020 Collaborative Design & Engineering 195800400			5	1	<b>Transport and Logistics</b> <b>Profile Courses (minimum 30 EC)</b> Transport Research Project (mandatory) 201100009 at least 2 of the following 4 courses: Simulation (IEM; follow-up of Module 8 CIT/TBK) 191820210 Operations Research Techniques 1 (IEM) (2018-2019) Traffic Operations 201100005 Mathematical Optimization in Transport 201100012 Traffic Management 201100006			5	1	<b>River and Coastal Engineering</b> <b>Profile Courses (minimum 30 EC)</b> at least 4 of the following 5 courses: Water Systems 201300077 Hydrology 195400100 Marine Dynamics 195400800 Morphology 195410200 Mathematical Physics of Water Systems 195400900 River Dynamics 195400400			5	1	<b>Sustainability</b> <b>Profile Courses (30 EC)</b> Sustainable Building Assessment Water Footprint Assessment Research Methodology & Academic Skills Sustainable Transport			5	1	<b>Smart Cities</b> <b>Profile Courses (minimum 30 EC)</b> Planning and Process Management Research Methodology & Academic Skills Land Use and Transport Interactions Integrated Water Management			5	1					
<b>Profile Electives</b> - Free to choose any of the 35 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) - Below: 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)			7,5	1	<b>Profile Electives</b> - Free to choose any of the 35 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) - Below: 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)			7,5	1	<b>Profile Electives</b> - Free to choose any of the 35 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) - Below: 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)			7,5	1	<b>Profile Electives</b> - Free to choose any of the 35 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) - Below: 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)			7,5	1										
Sustainable Building 195810400 Building Information Modeling & SD Planning 201400012 Project Control and Risk Management 195810600 Industrialization & Innovation in Construction 195810310 Infrastructure Management 195820500			7,5	1	Supply Chain Management and ICT 193801000 Statistics and Probability (IEM) 191506103 Supply Chain Finance (IEM) (2018-2019) Public Transport in urban areas 201600131 Data Science (CSC) + assignment 201400174 Transportation and Logistics (IEM) (2018-2019) Sustainable Transport 195420800 Operations Research Techniques 2 (IEM) (2018-2019) Planning and Scheduling (IEM) Warehousing (IEM)			7,5	1	Data Analysis in Water Engineering & Man. 195410100 Design Project Water II 195400500 GeoRiskManagement 195820300 Hydraulic Engineering 195410300			7,5	2	Legal & Governance Aspects Collaborative Design & Engineering Land Use and Transport Interactions Integrated Water Management			7,5	3	Legal & Governance Aspects Sustainable Building Public Transport in urban areas Data Science (EWI) + assignment Collaborative Design & Engineering Sustainable Transport Traffic Management			7,5	1					
Governing Product development (IDE) Maintenance Engineering and Management (ME) 201200146 Product Life Cycle (IDE) 192850740 Scenario based product design (IDE) 192850810 Cost Management and Engineering (IEM) 194110140 Product Life Cycle Management (IDE) 192850750 Reliability Engineering & Maintenance Mgmt (EM) 191852630 Design for Maintenance Operations (IDE) 201500235 Advanced 3D Modelling (IDE) 201500518 Virtual Reality (IDE) 201000201 LEAN Six-Sigma Green Belt (ME) 191127520			5	1	Discrete Optimization (AM) 191581100 Cognition and Technical Systems (PSY) Optimization Modelling (AM) 191581420 Scientific Computing (AM) 191551200 Human Computer Interaction (PSY) Stochastic Models (part of module 8, 85c-TW) 201400434 Markov Chains & Stoch.Sim. (part mod 8, 85c-TW) 201400434			5	1	Fluid Mechanics II (ME) 201500136 Transport Phenomena (ME) 191141700 Numerical Methods in ME (ME) 191157710 Data Science (CS) 201400174 Wave Motion (ME) 191154770 Turbulence (AP) 193580010 Theory of Partial Differential Equations (AM) 191550105 Introduction to Finite Elements (part mod11 WB) 201400311 Applied Finite Elements for PDE (AM) 191551161 Comp.Fluid Dynamics (ME) 191154711			5	2	Innovative Design (SET) Energy Conversion Technology (ME) Life-Cycle Strategy (ME) Policy Instr and Evaluation in Environ+Sust. (PA) Economic Methods of Sustainability Assessment (PA) Policy Strat.&Imp. for Water Govern+Sust. Issues (MEEM) Product Life Cycle (IDE) Electrical Power Engineering + System Integration (SET) Energy management, policy and technology (MEEM) Energy, Sustainability and Society (SET) Wind Energy (SET) Solar Energy (SET) Energy Storage (SET) Data Science (EWI)			5	1	Innovative Design (SET) Energy Conversion Technology (ME) Life-Cycle Strategy (ME) Resilience Engineering (PSY) Product Life Cycle (IDE) Electrical Power Engineering + System Integration (SET) Electric Vehicle System Design (IDE) Energy, Sustainability and Society (SET) Wind Energy (SET) Solar Energy (SET) Virtual Reality (IDE) Energy Storage (SET)			5	1					
<b>GENERAL COURSES</b> <b>Free Electives (max 15 EC)</b> Any course from UT or approved other university*			EC	Quartile	<b>Free Electives (max 15 EC)</b> Any course from UT or approved other university*			EC	Quartile	<b>Free Electives (max 15 EC)</b> Any course from UT or approved other university*			EC	Quartile	<b>Free Electives (max 15 EC)</b> Any course from UT or approved other university*			EC	Quartile										
<b>Thesis *</b> Preparation Master Thesis Master Thesis Construction			7,5	-	<b>Thesis **</b> Preparation Master Thesis Master Thesis Traffic			7,5	-	<b>Thesis **</b> Preparation Master Thesis Master Thesis Water			7,5	-	<b>Thesis **</b> Preparation Master Thesis Master Thesis Construction/Traffic/Water			7,5	-										
<b>ING AND CONSULTATION FOR THE MASTER PROFILES</b>																													
Track-coordinator: drs. ing. Hans Boes					Track-coordinator: prof. dr. ir. Eric van Berkum					Track-coordinator: dr. ir. Denie Augustijn					Track-coordinator: dr. Jord Warmink														
Coordinator Master Theses: dr. ir. Robin de Graaf					Coordinator Master Theses: prof. dr. ir. Eric van Berkum					Coordinator Master Theses: dr. ir. Martijn Booi					Coordinator Master Theses: see 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 Master Thesis and your MSc-thesis project.