Master Admission Requirements

last modified: 22-10-2024

Faculty of Science and Technology

- Applied Physics
- Biomedical Engineering
- Chemical Engineering
- Nanotechnology
- Watertechnology

Faculty of Engineering Technology

- Civil Engineering and Management
- Construction Management and Engineering
- Industrial Design Engineering
- Mechanical Engineering
- Sustainable Energy Technology

Faculty of Electrical Engineering, Mathematics and Computer Science

- Applied Mathematics
- Business Information Technology
- Computer Science
- Electrical Engineering
- Embedded Systems
- Interaction Technology
- Robotics

Faculty of Behavioural, Management and Social Sciences

- Business Administration
- Industrial Engineering and Management

Faculty of Geo-information Science and Earth Observation (ITC)

- Spatial Engineering

Note: the master admission requirements listed are an indication of what is required to become admissble for the masters' programmes. Always check if these requirements still apply with the master's programme you choose.

Note: in addition to fulfilling the requirements set by a master's programme, there is often room for other elective courses and/or modules. Please be aware of any rules and admission requirements, e.g. no overlap in content & sufficient difficulty level. Furthermore, access to elective courses can be restricted, depending on prior knowledge & rules adhered to by the module and coordinating studies (e.g. B-TCS modules can only be taken as a whole). Contact your study advisor to specify your plans.

Master: Applied Mathematics

Admission requirements 2024/2025

Webpage https://www.utwente.nl/en/am/

Contact person Lisette van den Broek

Procedure for admission

Before the minor registration deadline, please arrange a meeting with your study advisor and Jan Schut (AM coordinator) to discuss the requirements for the master's programme. Requirements may be subject to change depending on overlap in B-AT subjects.

Track: Operations Research (OR)

Block	code	name	EC	Remarks
(B2) 1.A	202400546	Computational Thinking *	4	**Recommended** - choose Matlab rather than Python
1.A	202200141	Linear Structures 1	5	
	202300016	Mathematical Statistics 1	7	
	201600167	Introduction to Mathematical Analysis	4	Block 1A, 1B, 2A
1.B	202200236	Linear Structures 2	4	
	202300026	Mathematical Statistics 2	5	
	202001180	Introduction to MOR	6	
2.A			11	Free choice
	202000668	Preparation Bachelor Assignment AT	4	Year
2.B	202000670	Bachelor Assignment	15	

Track: Mathematics of Data Science (MDS)
AI4Health

Block	code	name	EC	Remarks
(B2) 1.A	202400546	Computational Thinking *	4	**Recommended** - choose Matlab rather than Python
1.A	202200141	Linear Structures 1	5	
	202300016	Mathematical Statistics 1	7	
	201600167	Introduction to Mathematical Analysis	4	Block 1A, 1B, 2A
1.B	202200236	Linear Structures 2	4	
	202300026	Mathematical Statistics 2	5	
	202300028	Nonlinear Optimisation and Learning	5	
2.A			11	Free choice
	202000668	Preparation Bachelor Assignment AT	4	Year
2.B	202000670	Bachelor Assignment	15	

Track: Mathematical Systems Theory, Applied analysis and Computational Science (SACS)

Block	code	name	EC	Remarks
(B2) 1.A	202400546	Computational Thinking *	4	**Recommended** - choose Matlab rather than Python
1.A	202200141	Linear Structures 1	5	
	202300016	Mathematical Statistics 1	7	
	201600167	Introduction to Mathematical Analysis	4	Block 1A, 1B, 2A
1.B	202200236	Linear Structures 2	4	
	202200238	Systems Theory	5	
	202300028	Nonlinear Optimisation and Learning	5	
2.A			11	Free choice
	202000668	Preparation Bachelor Assignment AT	4	Year
2.B	202000670	Bachelor Assignment	15	

= Optional

* 202400546 Computational Thinking can be replaced with 191158500 Programming in Engineering (year).

Master: Applied Physics

Admission requirements 2024/2025

Webpage https://www.utwente.nl/en/ap/

Contact person Dr. D. Djokovic (Dejana)

Procedure for admission

Before the minor registration deadline you should arrange a meeting with Carlijn van Emmerik or Dejana Djokovic, study advisors of Applied Physics. Together you can go over the master's programme and choose a master's specialization.

Specialization: **Physics of Fluids**
Soft Matter

Block	code	name	EC	Remarks
1.A	*202000659*	*Condensed Matter Physics:*		*AT M9*
	202000660	Introduction Solid State Physics	5	
	202000661	Statistical Physics	5	
	202000662	Optics	2,5	Necessary pre-knowledge for 202000697 Optics block 1B
	202000663	Molecular Structure and Spectroscopy	2,5	
1.B	202200094	Quantummechanica 1 (Quantum mechanics)	5	
	202200095	Hilbertruimte (Hilbert Spaces)	3	
2.A			11	Free choice
	202000668	Preparation Bachelor Assignment AT	4	Year
2.B	202300023	Vloeistoffysica Theorie (Physics of fluids)	4,5	
	202300024	Vloeistoffysica Practica (Physics of fluids)	2,5	
	202000706	Electrodynamica (Electrodynamics)	6	Mandatory in either B or M; *part of TN M8*
	202000670	Bachelor Assignment	15	*AT M12*

Specialization: **Applied Nanophotonics**
Nano Electronic Materials
Energy, Materials & Systems

Block	code	name	EC	Remarks
1.A	*202000659*	*Condensed Matter Physics:*		*AT M9*
	202000660	Introduction Solid State Physics	5	
	202000661	Statistical Physics	5	
	202000662	Optics	2,5	Necessary pre-knowledge for 202000697 Optics block 1B
	202000663	Molecular Structure and Spectroscopy	2,5	
1.B	*202000696*	*Golven, Interferentie & Waarschijnlijkheid*		*TN M6 - Waves, Interference & Probability*
	202200094	Quantummechanica 1 (Quantum mechanics)	5	
	202200095	Hilbertruimte (Hilbert Spaces)	3	
	202001485	Optica Theorie (Optics Theory)	4,5	
	202300063	Optica Practica (Optics Practicals)	2,5	
2.A			11	Free choice
	202000668	Preparation Bachelor Assignment AT	4	Year
2.B	202000706	Electrodynamica (Electrodynamics)	6	Mandatory in either B or M; *part of TN M8*
	202000670	Bachelor Assignment	15	*AT M12*

IM: in-depth minor module
JM: Join-in Minor module
HM: High Tech/Human Touch Minor module

= Optional

Master: Business Administration

Admission requirements 2024/2025

Webpage	https://www.utwente.nl/en/ba/
Contact person	C.G.M. Röring

Procedure for admission

All students considering this master, please contact the study advisor, Ms C.G.M. Röring, by sending an e-mail or by making an appointment before the first quarter of your third year.

Block	code	name	EC	Remarks	minor
1.A	*202400050*	*Strategy, Marketing & Economics*		*IBA M5*	JM
	202400051	Strategy	3		
	202400052	Marketing	3		
	202400053	Economics	3		
	202400054	Market Challenge Consultancy Project	3		
	202400055	Data Analysis 2: More about Inf. Stat.	3		
1.B	202000595	High Tech Talent Management in a Global Context	15	*IBA M10*	IM
2.A			11	Free choice	
	202000668	Preparation Bachelor Assignment AT	4	Year	
2.B	202000670	Bachelor Assignment	15	*AT M12*	

Before the start of the academic year, communicate names of students to BA that will take these modules as premaster.

IM: in-depth minor module
JM: Join-in Minor module
HM: High Tech/Human Touch Minor module

Master: Business Information Technology

Admission requirements 2024/2025

Webpage https://www.utwente.nl/en/mbit/

Contact person Iris van Duiven-Meijlof via master-bit@utwente.nl

Procedure for admission

At the end of the third year, please contact the programme coordinator via master-bit@utwente.nl for admission to the master's programme. It is required to register for B-BIT modules/courses via the minor registration.

Block	code	name	EC	Remarks	minor
1.A	*202000410*	*Finance for Engineers BIT**		*BIT M5*	JM
	202000411	Accounting and Finance	3,5		
	202000412	Option Pricing	2,5		
	202000413	Project Finance for Engineers	6		
	202100211	IT & Law	3		
1.B	*202001064*	*Software Development (without Calculus 1B) **		*BIT M2*	JM
	202001065	System design	4		
	202001066	Programming	8		
	201400385	Introduction to Mathematical Analysis	3	Possible replacement for Caculus 1B	
2.A			11	Free choice	
	202000668	Preparation Bachelor Assignment AT	4	Year	
2.B	202000670	Bachelor Assignment	15	*AT M12*	

Note*: Finance for Engineers BIT may be replaced by 202000420 From product design to online business (BIT M7), or 202001067 Business Intelligence and IT (BIT M3 without linear algebra) if the student would like to spend the third quarter for preparation.

Note**: Software Development may be replaced by 202300185 Software Systems (TCS M2)

IM: in-depth minor module

JM: Join-in Minor module

HM: High Tech/Human Touch Minor module

= Optional

Master: Biomedical Engineering

Admission requirements 2024/2025

Webpage https://www.utwente.nl/en/bme/

Contact person J. Huttenhuis
studyadviser-bmt@utwente.nl

Procedure for admission

Before the registration period of the minors (around the start of the 2nd semester of your 2nd year) please arrange a meeting with a BME study advisor. You need to talk with one of them before you can start the minor.

Students are requested to do their Bachelor Assignments in the BME domain. For an extensive list of research groups affiliated with BME, please contact your study advisor.

Track: Physiological Signals and Systems

Block	code	name	EC	Remarks	minor
(B2) 1.B	*202001139*	*Systems & Control* ***OR***		*AT M6c*	
	202001140	Control Engineering	5		
	202001141	Engineering System Dynamics	5		
	202001142	Project Systems & Control	5		
1.A	*202400292*	*Biorobotics**		*BMT M9* - Overlap with M6c*	
	202400293	Project: BioRobotics	5		
	202400294	Control of Robotic Systems **	3		
	202400295	Robot Kinematics	2,5		
	202400296	Biomedical Signal Analysis	3		
	202400297	Programming of Embedded Systems	1,5		HM
1.B			11	Free choice	
	202000668	Preparation Bachelor Assignment AT	4	Year	
2.A	202000670	Bachelor Assignment	15	*AT M12*	
2.B	202000851	The Balancing Brain	15	*BMT M8 (in Dutch: Brein in Balans)*	

Track: Imaging and Diagnostics

Block	code	name	EC	Remarks	minor
1.A			15	Free choice	
1.B	202000855	Imaging and Diagnostics	15	*BMT M10 (in Dutch)*	
2.A			11	Free choice	
	202000668	Preparation Bachelor Assignment AT	4	Year	
2.B	202000670	Bachelor Assignment	15	*AT M12*	

Track: Bioengineering technologies

Block	code	name	EC	Remarks	minor
1.A	202400254	Creating Biological Tissues	13	*BMT M5 (in Dutch);* Cell Biology / Bio Lab Work	
	202400255	Project: Creating Biological Tissues	6,5		
	202400256	Structure Analysis	2,5		
	202400257	Applied Cell Biology	4		
			2	Free choice	
1.B			11	Free choice	
	202000668	Preparation Bachelor Assignment AT	4	Year	
2.A	202300245	Bioengineering Technologies	15	*BMT M11 (in Dutch)*	
2.B	202000670	Bachelor Assignment	15	*AT M12*	

Track: Biorobotics

Block	code	name	EC	Remarks	minor
1.A	*202400292*	*Biorobotics**		*BMT M9* - Overlap with M6c*	
	202400293	Project: BioRobotics	5		
	202400294	Control of Robotic Systems **	3		
	202400295	Robot Kinematics	2,5		
	202400296	Biomedical Signal Analysis	3		
	202400297	Programming of Embedded Systems	1,5		HM
1.B	*202001139*	*Systems & Control*		*AT M6c*	
	202001140	Control Engineering	5		
	202001141	Engineering System Dynamics	5		
	202001142	Project Systems & Control	5		
2.A			11	Free choice	
	202000668	Preparation Bachelor Assignment AT	4	Year	
2.B	202000670	Bachelor Assignment	15	*AT M12*	

Track: Medical Device Design

Block	code	name	EC	Remarks	minor
1.A	*202400292*	*Biorobotics**		*BMT M9* - Overlap with M6c*	
	202400293	Project: BioRobotics	5		
	202400294	Control of Robotic Systems **	3		
	202400295	Robot Kinematics	2,5		
	202400296	Biomedical Signal Analysis	3		
	202400297	Programming of Embedded Systems	1,5		HM
1.B	*202001139*	*Systems & Control*		*AT M6c*	
	202001140	Control Engineering	5		
	202001141	Engineering System Dynamics	5		
	202001142	Project Systems & Control	5		
2.A			11	Free choice	
	202000668	Preparation Bachelor Assignment AT	4	Year	
2.B	202000670	Bachelor Assignment	15	*AT M12*	

IM: in-depth minor module
JM: Join-in Minor module
HM: High Tech/Human Touch Minor module

= Possible to take both, or to make a selection. *

* If you also want to take both Biorobotics and AT M6c Systems&Control, first take Systems&Control and then Biorobotics variant B in Control of Robotic Systems.

** If you're doing both Systems & Control and Biorobotics, you should take 'variant B' in Control of Robotic Systems within Biorobotics

Master: **Civil Engineering and Management**

Admission requirements 2024/2025

Webpage https://www.utwente.nl/en/cem/

Contact person Peter Jansen MSc

Procedure for admission

Somewhere around May/June of your 2nd year, please send an e-mail about your participation to Ms. Elora Luijkx, pre-master coordinator of the faculty Engineering Technology and Peter Jansen, programme coordinator CE/CEM/CME.

Track: **Construction**

Block	Code	Name	EC	Remarks
1.A	202000695	Engineering Solid Mechanics	4	Mandatory prior knowledge for Designing Constructions (2B)
			11	Free choice
1.B			11	Free choice
	202000668	Preparation Bachelor Assignment AT	4	Year
2.A	202000670	Bachelor Assignment AT	15	*AT M12*
2.B	*202000060*	*Designing Constructions * **OR***		*CE M4*
	202300123	Structural Mechanics 2	3	
	202000062	Introduction Project Disciplines	4,5	
	202000063	Project	4,5	
			3	Free choice
1.B	*202100168*	*Sustainable Civil Engineering*		*CE M6*
	202100169	Design Strategy and Evaluation	3,5	
	202100170	Structural Mechanics 3	3,5	
	202100173	Energy	2	
	202100172	Social Sustainability	3	
	202100171	Environmental and Economic Sustainability	3	

Track: **Water**

Block	Code	Name	EC	Remarks
1.A	*202000064*	*Safety and risk in Deltas ***		*CE M5*
	202000065	Soil Mechanics	2	
	202000066	Fluid Mechanics 2	2	
	202000067	Water Management	2,5	
	202000068	Project Flood Risk	6	
	202200069	Introduction to PiE using Python 2	0,5	
			2	Free choice
1.B			15	Free choice
2.A			11	Free choice
	202000668	Preparation Bachelor Assignment AT	4	Year
2.B	202000670	Bachelor Assignment AT	15	*AT M12*

Track: **Traffic**

Block	Code	Name	EC	Remarks
1.A			15	Free choice
1.B			15	Free choice
2.A	*202000056*	*Traffic and Transport **** **OR**		*CE M3*
	202000057	Theory Traffic & Transport	5	
	202000058	Project Traffic & Transport	7	
	202000668	Preparation Bachelor Assignment AT	4	Year
2.B	*202200229*	*Simulation and Stochastic Modelling in Civil Engineering*		*CE M8*
	202200230	Traffic Flows	3	
	202200231	Process Simulation in Construction	3	
	202200232	Integrated Project Simulation and Stochastic Modelling in CE	9	
	202000670	Bachelor Assignment AT	15	*AT M12*

Track: **Integrated Civil Engineering Systems - Profile Sustainability and Resilience**

Block	Code	Name	EC	Remarks
1.A (B2)	202000695	Engineering Solid Mechanics	4	
1.A	*202000064*	*Safety and risk in Deltas *** **OR**		*CE M5*
	202000065	Soil Mechanics	2	
	202000066	Fluid Mechanics 2	2	
	202000067	Water Management	2,5	
	202000068	Project Flood Risk	6	
	202200069	Introduction to PiE using Python 2	0,5	
			2	Free choice
1.B	*202100168*	*Sustainable Civil Engineering* **OR**		*CE M6*
	202100169	Design Strategy and Evaluation	3,5	
	202100170	Structural Mechanics 3	3,5	
	202100173	Energy	2	
	202100172	Social Sustainability	3	
	202100171	Environmental and Economic Sustainability	3	
2.A	*202000072*	*Area development*		*CE M7*
	202000073	Practical GIS	2	
	202000074	Economic Assessment	2	
	202000075	Spatial Policy and Law	2	
	202000076	Stakeholder Analysis and Management	2	
	202000077	Project Area Development	7	
	202000668	Preparation Bachelor Assignment AT	4	
2.B	202000670	Bachelor Assignment AT	15	*AT M12*

Track: **Integrated Civil Engineering Systems - Profile Civil Engineering Structures**

Block	Code	Name	EC	Remarks
1.A (B2)	202000695	Engineering Solid Mechanics	4	
1.A	*202000064*	*Safety and risk in Deltas *** **OR**		*CE M5*
	202000065	Soil Mechanics	2	
	202000066	Fluid Mechanics 2	2	
	202000067	Water Management	2,5	
	202000068	Project Flood Risk	6	
	202200069	Introduction to PiE using Python 2	0,5	
			2	Free choice
1.B	*202100168*	*Sustainable Civil Engineering* **OR**		*CE M6*
	202100169	Design Strategy and Evaluation	3,5	
	202100170	Structural Mechanics 3	3,5	
	202100173	Energy	2	
	202100172	Social Sustainability	3	
	202100171	Environmental and Economic Sustainability	3	
2.A			11	Free choice
	202000668	Preparation Bachelor Assignment AT	4	Year
2.B	*202000060*	*Designing Constructions **		*CE M4*
	202300123	Structural Mechanics 2	3	
	202000062	Introduction Project Disciplines	4,5	
	202000063	Project	4,5	
			3	Free choice
	202000670	Bachelor Assignment AT	15	*AT M12*

= Possible to take all modules for a track, or to make a selection. Full modules are required, unless indicated otherwise *, **, ***

* The Minor 'Designing Constructions' contains the course Calculus 2. This course should be replaced with a relevant 3 EC course.

** The Minor 'Safety and Risk in Deltas' contains the course Vector Calculus. This course should be replaced with a relevant 2 EC course.

*** The Minor 'Traffic and Transport' contains the course Linear Algebra. This course should be replaced with a relevant 3 EC course.

Master: Construction Management and Engineering (4TU)

Admission requirements 2024/2025

Webpage https://www.utwente.nl/en/cme/

Contact person Peter Jansen MSc

Procedure for admission

Somewhere around May/June of your 2nd year, please send an e-mail about your participation to Ms. Elora Luijkx, pre-master coordinator of the faculty Engineering Technology and Peter Jansen, programme coordinator CE/CEM/CME.

Block	Code	Name	EC	Remarks
1.A	202000695	Engineering Solid Mechanics	4	Mandatory prior knowledge for Designing Constructions (2B)
			11	Free choice
1.B			11	Free choice
	202000668	Preparation Bachelor Assignment AT	4	Year
2.A	202000670	Bachelor Assignment AT	15	*AT M12*
2.B	*202000060*	*Designing Constructions * **OR***		*CE M4*
	202300123	Structural Mechanics 2	3	
	202000062	Introduction Project Disciplines	4,5	
	202000063	Project	4,5	
			3	Free choice
1.B	*202100168*	*Sustainable Civil Engineering*		*CE M6*
	202100169	Design Strategy and Evaluation	3,5	
	202100170	Structural Mechanics 3	3,5	
	202100173	Energy	2	
	202100172	Social Sustainability	3	
	202100171	Environmental and Economic Sustainability	3	

* The Minor 'Designing Constructions' contains the course Calculus 2. This course should be replaced with a relevant 3 EC course.

= Possible to take all, or to make a selection.

Master: Computer Science

Admission requirements 2024/2025

Webpage https://www.utwente.nl/en/csc/

Contact person Drs. M. van Grinsven
master-coordinator-cs@utwente.nl

Procedure for admission

At the end of the third year, please contact the programme coordinator Ms. M. van Grinsven, master-coordinator-cs@utwente.nl, for admission to the master's programme.

Track: Cyber Security / Internet Science and Technology

Block	code	name	EC	Remarks	minor
1.A	*202200165*	*Computer Systems for CS **		*CS M5*	JM/HM/IM
	202200166	Operating Systems	6		
	202200167	Computer Architecture & Organization	5		
	202200168	IT & Law	1		
	202001234	Discrete Mathematics	3		
1.B	202400355	*Software systems (without Calculus B)*; ***		*CS M2*	JM
	202400356	Software Design	4		
	202400357	Object-Oriented Programming	8		
	202001182	Algorithms, Data structures, Complexity **OR**	5	Optional; recommended replacement for Caculus 1B	
	201400385	Introduction to Mathematical Analysis	3	Optional; possible replacement for Caculus 1B	
2.A	*202001150*	*Network Systems for EE **		*EE M7*	JM/HM/IM
	202001151	Network Systems core	12		
	202001152	Programming 2	3		
	202000668	Preparation Bachelor Assignment AT	4	year	
2.B	202000670	Bachelor Assignment	15	*AT M12*	

Track: Data Science & Technology; Software Technology

Block	code	name	EC	Remarks	minor
1.A	*202200165*	*Computer Systems for CS **		*CS M5*	JM/HM/IM
	202200166	Operating Systems	6		
	202200167	Computer Architecture & Organization	5		
	202200168	IT & Law	1		
	202001234	Discrete Mathematics	3		
1.B	202400355	*Software systems (without Calculus B)*; ***		*CS M2*	JM
	202400356	Software Design	4		
	202400357	Object-Oriented Programming	8		
	202001182	Algorithms, Data structures, Complexity **OR**	5	Optional; recommended replacement for Caculus 1B	
	201400385	Introduction to Mathematical Analysis	3	Optional; possible replacement for Caculus 1B	
2.A	*202001359*	*Discrete Structures and Efficient Algorithms **		*CS M7*	JM/HM/IM
	202001360	Algorithmic Discrete Mathematics	5		
	202001361	Languages & Machines	3,5		
	202001362	Algebra	3,5		
	202001363	Implementation Project on Graph Isomorphism	3		
	202000668	Preparation Bachelor Assignment AT	4	year	
2.B	202000670	Bachelor Assignment	15	*AT M12*	

IM: in-depth minor module
JM: Join-in Minor module
HM: High Tech/Human Touch Minor module

= Possible to take all, or to make a selection. *

= Pick one out of two.

* any combination of 2 (out of possible 4) modules is enough for admission into the Master CS, see www.utwente.nl/en/csc/premaster/transfer-ut-bachelor/. Both modules need to be completed as a whole (or 12EC, CS2) in order to be eligible for admission.

** The Module 'Software Systems' contains the course Calculus 1B. This course should be replaced with a relevant 3 EC course (examples given in matrix).

Note! Most modules have limited availability and are not open to registration for students outside (CS, EE, AM). Make sure to register on time through www.utwente.nl/minor.

Master: Chemical Science & Engineering

Admission requirements 2024/2025

Webpage https://www.utwente.nl/cse

Contact person Charlotte Diepenmaat
Leonie Krab

Procedure for admission

At the end of the second year, contact the bachelor's coordinator of CSE (bachelor-cse@utwente.nl) about participation CSE module 7.
Please contact Charlotte Diepenmaat for an introductory meeting before the start of the master's (around the end of your third year).

Track: Chemical and Process Engineering

Block	code	name	EC	Remarks
(B2) 1.B	*202000633*	*Materials Science and Engineering **		*AT M6a*
	202000634	Advanced Materials	3,5	
	202000635	Fundamentals of Solids	3,5	
	202000636	Chemistry and Technology of Materials	4	
		elective 1 of 2		
	202000637	Semiconductor Devices	4	
	202000638	Physical Chemistry of Interfaces **	4	
1.A	201800102	Basics for Process Simulation	5	Course as preparation for CSE M8
		Optional		
	202000733	*Industrial Processes*		*CSE M5*
	202000734	Kinetics & Catalysis	4,5	
	202000735	Ind. Chem. Proc. & Proj. Sust. Ind. Chem	8,5	
1.B	*202000736*	*Physical Transport*		*AT M6b*
	202000737	Physical Transport Phenomena	7,5	
	202000738	Project Transport Phenomena	4	
	202000739	Numerical Methods	3,5	
	202000668	Preparation Bachelor Assignment AT	4	Year
2.A	202300163	Interface Science **	3	
	202000670	Bachelor Assignment	15	*AT M12*
2.B	*202000744*	*Process Design*		*CSE M8a*
	202000745	Intr. Chemical Reactor Engineering	4	
	202000746	Intr. Seperation Methods	4	
	202000747	Project Process Design	7	

Track: Molecular and Materials Engineering & Materials Science and Engineering

Please note that if you want to go into the MME direction, you need to take CSE module 7. As this module contains a lab part, you need to contact the CSE programme coordinator (bachelor-cse@utwente.nl) in the first quarter to inform if any lab places are available.

Block	code	name	EC	Remarks
1.A			15	Free Choice
(B2) 1.B	*202000633*	*Materials Science and Engineering **		*AT M6a*
	202000634	Advanced Materials	3.5	
	202000635	Fundamentals of Solids	3.5	
	202000636	Chemistry and Technology of Materials	4	
		Elective 1 of 2		
	202000637	Semiconductor Devices	4	
	202000638	Physical Chemistry of Interfaces **	4	
2.A	*202000740*	*Molecules and Materials*		*CSE M7* (ask the programme coordinator about the available places)
	202100249	Organic & Bio-organic Chemistry	8	
	202100250	Characterization of Molecules & Materials Science	4	
	202300163	Interface Science **	3	
	202000668	Preparation Bachelor Assignment AT	4	Year
2.B	202000670	Bachelor Assignment	15	Module AT12

IM: in-depth minor module
JM: Join-in Minor module
HM: High Tech/Human Touch Minor module

= Pick one out of two **

= Optional

** An alternative for AT M6a Materials Science and Engineering is CSE M8b Materials Science & Technology (block 2B)

** There is overlap in content between 202000638 Physical Chemistry of Interfaces and 202300163 Interface Science. Choose either Interface Science or Physical Chemistry of Interfaces.

Master: Electrictical Engineering

Admission requirements 2024/2025

Webpage https://www.utwente.nl/en/mee/

Contact person Lisette van den Broek

Specialisations: Nano Electronics (NE)
Micro Sensors and Systems (IDS)
Integrated Devices and Systems (IDS)
Integrated Optical Systems (IOS)

Block	code	name	EC	Remarks	minor
(B2) 1.A	202400546	Computational Thinking	4	Alternative: 191158510 PiE in 1.B	
	202000644	Electronics	4		
1.A	*202001135*	*Computer Systems for EE (without Continuous Linear Systems)*		*EE M5*	JM
	202001136	Computer Architecture and Organisation	4		
	202001137	Digital Hardware	6		
			5	Free choice	
1.B			15	Free choice	
2.A	*202001143*	*Device Physics (without Single Electron Transistor)*		*EE M7A*	JM/HM
	202001145	Semiconductor Physics	3		
	202001146	Semiconductor Devices	3		
	202001147	Transduction & Mechanical Devices	3		
	202001148	Optical Devices	1,5		
	202001149	Project M7A	3		
	202000668	Preparation Bachelor Assignment AT	4	Year	
2.B	202000670	Bachelor Assignment	15	*AT M12*	

Specialisations: Radio Systems (RS)
Integrated Circuit Design (ICD)
Dependable Integrated Systems (CAES)
Computer Vision and Biometrics (DMB)

Block	code	name	EC	Remarks	minor
(B2) 1.A	202400546	Computational Thinking	4	Alternative: 191158510 PiE in 1.B	
	202000644	Electronics	4		
1.A	*202001135*	*Computer Systems for EE (without Continuous Linear Systems)*		*EE M5*	JM
	202001136	Computer Architecture and Organisation	4		
	202001137	Digital Hardware	6		
			5	Free choice	
1.B			11	Free choice	
	202000668	Preparation Bachelor Assignment AT	4	Year	
2.A	202000670	Bachelor Assignment	15	*AT M12*	
2.B	*202001153*	*Signal Processing and Communications (without Probability Theory for*		*EE M8*	JM/HM
	202001154	Communication Systems	6		
			9	Free choice	

Specialisations: Biomedical Signals & Systems (BSS)
Power Electronic & EMC (PE)

Block	code	name	EC	Remarks	minor
(B2) 1.A	202400546	Computational Thinking	4	Aternative: 191158510 PiE in 2.A	
	202000644	Electronics	4		
1.A	*202001135*	*Computer Systems for EE (without Continuous Linear Systems)*		*EE M5*	JM
	202001136	Computer Architecture and Organisation	4		
	202001137	Digital Hardware	6		
			5	Free choice	
1.B	*202001139*	*Systems & Control **		*AT M6c*	JM
	202001140	Control Engineering	5		
	202001141	Engineering System Dynamics	5		
	202001142	Project Systems & Control	5		
2.A			11	Free choice	
	202000668	Preparation Bachelor Assignment AT	4	Year	
2.B	202000670	Bachelor Assignment	15	*AT M12*	

Specialisations: Communication Networks (DACS)

Block	code	name	EC	Remarks	minor
(B2) 1.A	202400546	Computational Thinking	4	Alternative: 191158510 PiE in 1.B	
	202000644	Electronics	4		
1.A	*202001135*	*Computer Systems for EE (without Continuous Linear Systems)*		*EE M5*	JM
	202001136	Computer Architecture and Organisation	4		
	202001137	Digital Hardware	6		
			5	Free choice	
1.B			11	Free choice	
	202000668	Preparation Bachelor Assignment AT	4	Year	
2.A	*202001150*	*Network Systems for EE*		*EE M7*	JM/HM
	202001151	Network Systems core	12		
	202001152	Programming 2	3		
2.B	202000670	Bachelor Assignment	15	*AT M12*	

* If you also want to take both AT M6c Systems&Control and Biorobotics, you must take Systems&Control first and then Biorobotics with the advanced variants of Control of Robotic Systems and Biomedical Signal Analysis.

IM: in-depth minor module
JM: Join-in Minor module
HM: High Tech/Human Touch Minor module

Master: Embedded Systems

Admission requirements 2024/2025

Webpage	https://www.utwente.nl/en/emsys/
Contact person	Lisette van den Broek

Procedure for admission

You can contact Shaokang Zhang if you have any questions about the admission requirements.

Block	code	name	EC	Remarks	minor
(B2) 1.A	202400546	Computational Thinking	4	Alternative: 191158510 PiE in 2.A	
1.A	202200165	Computer Systems for CS		*CS M5*	JM
	202200166	Operating Systems	6		
	202200167	Computer Architecture & Organization	5		
	202200168	IT & Law	1		
	202001234	Discrete Mathematics	3		
	202001135	*Computer Systems for EE (without Continuous Linear Systems)*		*EE M5*	
	202001136	Computer Architecture and Organisation	4		JM
	202001137	Digital Hardware	6		
			5	Free choice	
1.B	*202300110*	*Cyber-Physical Systems*	*15*	*CS M10*	IM
2.A	*202001150*	*Network Systems * (with C++)*		*Optional. EE M7*	JM
	202001151	Network Systems Core	12		
	202001152	Programming 2	3		
	202000668	Preparation Bachelor Assignment AT	4	Year	
2.B	202000670	Bachelor Assignment	15	Module AT12	

* There is overlap in content between 2020011550 Network Systems and Computational Thinking / Programming in Engineering. Combination is not

= Pick one out of two.

= Pick one out of two (or both).

IM: in-depth minor module
JM: Join-in Minor module
HM: High Tech/Human Touch Minor module

Master: Industrial Design Engineering

Admission requirements 2024/2025

Webpage https://www.utwente.nl/en/ide/

Contact person h.m.hemmer@utwente.nl
premastercoordinator-et@utwente.nl

Procedure for admission

In order to be granted admission to the courses listed below, please send an e-mail to Hiske Schuurman-Hemmer (h.m.hemmer@utwente.nl) stating which courses you'd like to join at which time. Send the email before the 1st of August in order to be granted admission to these courses.

Block	code	name	EC	Remarks	minor
1.A	202400379	Design Fundamentals	2		-
	202400377	Statics	2		
	202000161	Technical Product Definition	2		
	202000200	Physical Ergonomics	2,5		
	202000201	Project Human-Product Relations	7,5		
1.B	202400384	Materials & Production	3		-
	202400383	Mechanics of Materials *	3		
	202000206	Project Consumer Products	8		
2.A			11	Free choice	
	202000668	Preparation Bachelor Assignment AT	4	Year	
2.B	202000670	Bachelor Assignment	15	*AT M12*	

* Mechanics of Materials has overlap with Engineering Solid Mechanics. Combination is not allowed.

Master: Industrial Engineering and Management

Admission requirements 2024/2025

Webpage https://www.utwente.nl/en/iem/

Contact person N. van der Veen

Procedure for admission

Please send Mr N. van der Veen, programme coordinator of IEM, an email that includes a motivation letter about the specialization of your choice and an up-to-date transcript of records.

Note

Please note that these courses are pre-master courses. The pre-master has to be completed successfully within one academic year (with no more than 2 exams per course) to be admitted to the master's programme. Not meeting these prerequisites means that you don't have access to the master IEM.

Track: Financial Engineering

Block	code	name	EC	Remarks
1.A	202000454	Financial Engineering for premaster IEM	10	
	202001176	Statistics & probability for premaster IEM	5	
1.B			15	Free choice
2.A			15	Free choice
	202000668	Preparation Bachelor Assignment AT	4	Year
2.B	202000670	Bachelor Assignment	15	*AT M12*

minor

Track: Production and Logistics Management
Health Care Technology and Management

Block	code	name	EC	Remarks
1.A	202000450	OR Models for the premaster IEM	10	
	202001176	Statistics & probability for premaster IEM	5	
1.B			15	Free choice
2.A			15	Free choice
	202000668	Preparation Bachelor Assignment AT	4	Year
2.B	202000670	Bachelor Assignment	15	*AT M12*

minor

Master: Interaction Technology

Admission requirements 2024/2025

Webpage	https://www.utwente.nl/en/itech/
Contact person	Master Coordinator I-Tech
	https://www.utwente.nl/en/itech/organization/

Procedure for admission

It is required to contact the I-Tech master coordinator in preparation of your third year. The I-Tech programme will help shape your master preparation based on what you've done in your AT elective space.

Block	code	name	EC	Remarks	minor
1.B (B2)	*202001064*	*Software Development **		Without Calc 1B (3 EC) / System Design optional	
	202001065	Programming	8		
	202001066	System Design	4		
			3	Free choice	
1.A	*202400350*	*Pearls of Computer Science Core **		Without 202001190 Intro to Math + Calc 1A (4 EC)	JM
	202400351	Computing Fundamental Pearls	4		
	202400352	Programming Pearls	4		
	202400353	Pearls Project	3		
	202001061	Introduction to Computer Science (BIT)	6		
1.B	202200145	Artificial Intelligence and Cyber Security	6	CS M6	
	202200146	Human-Computer Interaction Design and Evaluation	6	CS M6	
	202300216	Design and Research of User Experience	9,5	CreaTe M6	
2.A			11	Free choice	
	202000668	Preparation Bachelor Assignment AT	4	Year	
2.B	202000670	Bachelor Assignment	15	*AT M12*	

IM: in-depth minor module
JM: Join-in Minor module
HM: High Tech/Human Touch Minor module

= Possible to take both, or to make a selection. *

= Optional

Master: Mechanical Engineering

Admission requirements 2024/2025

Webpage https://www.utwente.nl/en/me/

Contact person premastercoordinator-et@utwente.nl

Procedure for admission

If there are any questions or unclarities relating to the master ME, please contact Elora Luijx, pre-master coordinator of the faculty Engineering Technology. Questions concerning the prerequisites can be addressed to your study advisor.

Option 1 (if you did M6a Materials Science and Engineering or M6d Software Systems in your 2nd year)

Block	code	name	EC	Remarks	minor
(B2) 1.A	202000695	Engineering Solid Mechanics *	4		
1.A	*202400292*	*Biorobotics ** *		*BMT M9* - Overlap with M6c	
	202400293	Project: BioRobotics	5		
	202400294	Control of Robotic Systems ***	3		
	202400295	Robot Kinematics	2,5		
	202400296	Biomedical Signal Analysis	3		
	202400297	Programming of Embedded Systems	1,5		HM
1.B	202000158	Aeronautical Engineering: Aircraft Engineering	15		HM
2.A	202000149	Introduction Finite Elements - PB	3,5		
	202000138	Fluid Mechanics 1 - PB	3,5	Overlap with M6b	
	202000139	Heat Transfer - PB	3,5	Overlap with M6b	
	202000668	Preparation Bachelor Assignment AT	4	Year	
	202000243	Introduction Mechanical Engineering - PB	5	Mandatory in either B or M	
2.B	202000670	Bachelor Assignment	15	*AT M12*	
	202000143	Dynamics 2 - PB	4,5		

Option 2 (if you did M6b Transport Phenomena in your 2nd year)

Block	code	name	EC	Remarks	minor
(B2) 1.A	202000695	Engineering Solid Mechanics *	4		
1.A	*202400292*	*Biorobotics ** *		*BMT M9* - Overlap with M6c	
	202400293	Project: BioRobotics	5		
	202400294	Control of Robotic Systems ***	3		
	202400295	Robot Kinematics	2,5		
	202400296	Biomedical Signal Analysis	3		
	202400297	Programming of Embedded Systems	1,5		HM
1.B	202000158	Aeronautical Engineering: Aircraft Engineering	15		HM
2.A	202000149	Introduction Finite Elements - PB	3,5		
	202000243	Introduction Mechanical Engineering - PB	5		
	202000668	Preparation Bachelor Assignment AT	4	Year	
			2,5	Free choice	
2.B	202000670	Bachelor Assignment	15	*AT M12*	
	202000143	Dynamics 2 - PB	4,5		

Option 3 (if you did M6c Systems and Control in your 2nd year)

Block	code	name	EC	Remarks	minor
(B2) 1.A	202000695	Engineering Solid Mechanics *	4		
1.A			15	Free choice	
1.B	202000158	Aeronautical Engineering: Aircraft Engineering	15		HM
2.A	202000149	Introduction Finite Elements - PB	3,5		
	202000138	Fluid Mechanics 1 - PB	3,5	Overlap with M6b	
	202000139	Heat Transfer - PB	3,5	Overlap with M6b	
	202000668	Preparation Bachelor Assignment AT	4	Year	
	202000243	Introduction Mechanical Engineering - PB	5	Mandatory in either B or M	
2.B	202000670	Bachelor Assignment	15	*AT M12*	
	202000143	Dynamics 2 - PB	4,5		

* 202000695 Engineering Solid Mechanics can be replaced with 2020001410 Mechanics of Materials in 2.B (3 EC).

** If you also want to take both Biorobotics and AT M6c Systems&Control, first take Systems&Control and then Biorobotics with the advanced variants of Control of Robotic Systems and Biomedical Signal Analysis.

*** If you're doing both Systems & Control and Biorobotics, you should take 'variant B' in Control of Robotic Systems within Biorobotics

note

AT - M6b CSE module 6 Transport Phenomena is equivalent to Fluid Mechanics 1 and Heat Transfer in Block 2A

AT - M6c Systems and Control - AT is equivalent to Biorobotics in block 1A

IM: in-depth minor module

JM: Join-in Minor module

HM: High Tech/Human Touch Minor module

= Optional

Master: Nano Technology

Admission requirements 2024/2025

Webpage https://www.utwente.nl/nt/

Contact person Bram Schouwstra BA
Florien Lukkien MA

Procedure for admission

Please contact Florien Lukkien for an introductory meeting before the start of the master's (around the end of your third year).

Block	code	name	EC	Remarks	minor
(B2) 1.B	*202000633*	*Materials Science and Engineering*		*AT M6a* / Possible alternative: CSE M8b (202000748 Materials Science & Technology)	
	202000634	Advanced Materials	3.5		
	202000635	Fundamentals of Solids	3.5		
	202000636	Chemistry and Technology of Materials	4		
		elective 1 of 2			
	202000637	Semiconductor Devices	4		
	202000638	Physical Chemistry of Interfaces	4		
1.A	*202000659*	*Condensed Matter Physics*		*AT M9*	IM
	202000660	Introduction Solid State Physics	5		
	202000661	Statistical Physics	5		
	202000662	Optics	2.5		
	202000663	Molecular Structure and Spectroscopy	2.5		
	202200253	FEM Theory and COMSOL Simulations for micro- & nanodevices	5		
1.B	201600046	Lab on a Chip	15		IM
2.A	191211300	Micro Electro- Mechanical Systems Design	5	Master's elective course. High entry level	
	202000666	Transducers	3		
			3	Free choice	
	202000668	Preparation Bachelor Assignment AT	4		
2.B	202000670	Bachelor Assignment	15	*AT M12*	

IM: in-depth minor module
JM: Join-in Minor module
HM: High Tech/Human Touch Minor module

= Optional

= Pick one out of two.

Master: Robotics

Admission requirements 2024/2025

Webpage https://www.utwente.nl/en/education/master/programmes/robotics/

Contact person Dr. Heidi Muijzer-Witteveen
Dr. Ir. Jan Broenink

Mechatronics and Physical AI (MPAI) specialization - recommended courses

Block	code	name	EC	Remarks	
1.A (B2)	202400546	Computational Thinking	4		
1.A	*202400292*	*Biorobotics**		*BMT M9* - Overlap with M6c*	
	202400293	Project: BioRobotics	5		
	202400294	Control of Robotic Systems ***	3		
	202400295	Robot Kinematics	2,5		
	202400296	Biomedical Signal Analysis	3		
	202400297	Programming of Embedded Systems	1,5		HM
1.B	*202001139*	*Systems & Control*		*AT M6c*	
	202001141	Engineering System Dynamics	5		
	202001140	Control Engineering	5		
	202001142	Project Systems & Control	5		
2.A	202000668	Preparation Bachelor Assignment AT	4	Year	
2.B	202000670	Bachelor Assignment	15	*AT M12*	

Algorithms and Software AI (ASAI) specialization - recommended courses

Block	code	name	EC	Remarks	
1.A	202400546	Computational Thinking	4		
	202400292	*Biorobotics**		*BMT M9* - Overlap with M6c*	
	202400293	Project: BioRobotics	5		
	202400294	Control of Robotic Systems ***	3		
	202400295	Robot Kinematics	2,5		
	202400296	Biomedical Signal Analysis	3		
	202400297	Programming of Embedded Systems	1,5		HM
1.B	*202001139*	*Systems & Control*		*AT M6c*	
	202001141	Engineering System Dynamics	5		
	202001140	Control Engineering	5		
	202001142	Project Systems & Control	5		
1.B	202001043	Cyber Physical Systems	15	*CS M10*	HM
2.A	202000668	Preparation Bachelor Assignment AT	4	Year	
2.B	202000670	Bachelor Assignment	15	*AT M12*	

Human-Robot Interaction and Social AI (HRISAI) specialization - recommended courses

Block	code	name	EC	Remarks	
1.A	202400546	Computational Thinking	4		
	202400292	*Biorobotics**		*BMT M9* - Overlap with M6c*	
	202400293	Project: BioRobotics	5		
	202400294	Control of Robotic Systems ***	3		
	202400295	Robot Kinematics	2,5		
	202400296	Biomedical Signal Analysis	3		
	202400297	Programming of Embedded Systems	1,5		HM
1.B	*202001139*	*Systems & Control*		*AT M6c*	
	202001141	Engineering System Dynamics	5		
	202001140	Control Engineering	5		
	202001142	Project Systems & Control	5		
1.B	*202001031*	*Intelligent Interaction Design **		*CS M6 (without Statistical Techniques - overlap AT core)*	JM
	202200145	Artificial Intelligence and Cyber Security	6		
	202200146	Human-Computer Interaction Design and Evaluation	6		
			3	Free choice	
2.A	202000668	Preparation Bachelor Assignment AT	4	Year	
2.B	202000670	Bachelor Assignment	15	*AT M12*	

IM: in-depth minor module
JM: Join-in Minor module
HM: High Tech/Human Touch Minor module

= Possible to take both, or to make a selection. *

= Optional

* If you also want to take both Biorobotics and AT M6c Systems&Control, first take Systems&Control and then Biorobotics with variant B of Control of Robotic Systems.
** There is overlap in content between 2020000979 Smart Technology and 202001031 Intelligent Interaction Design. Combination is not allowed.
*** If you're doing both Systems & Control and Biorobotics, you should take 'variant B' in Control of Robotic Systems within Biorobotics

Master: Spatial Engineering

Admission requirements 2024/2025

Webpage	https://www.utwente.nl/en/education/master/programmes/spatial-engineering/
Contact person	Drs. T.R. Luiten MBA

Procedure for admission

Since there is no fixed programme that determines your admission to the programme, you can contact Ms. T.R. Luiten if you are interested in the Spatial Engineering master's programme.

To allow students to meet the final qualifications of the Spatial Engineering programme it is necessary that incoming students have knowledge at bachelors level of a research university in at least three of the following topics:

- Water, weather and climate (hydrology, meteorology)
- Earth sciences (geo-engineering, geology, earth surface processes)
- Civil engineering (infrastructure, building, hydraulics, hard interventions)
- Spatial planning and governance (urban and or rural environments)
- Spatial information and visualization (GIS, Remote Sensing)
- Software engineering

Block	code	name	EC	Remarks
1.A	201500060	Geographic Information Systems	15	Recommended*
1.B	202200306	Adapting to climate change with Spatial Engineering	15	Recommended*
	201500062	Earth Observation	15	Recommended*
2.A			11	Free choice
	202000668	Preparation Bachelor Assignment AT	4	Year
2.B	202000670	Bachelor Assignment AT	15	*AT M12*

*These modules provide knowledge in the fields mentioned above, providing the most direct access to the Master.

= Optional

Master: Sustainable Energy Technology

Admission requirements 2024/2025

Webpage https://www.utwente.nl/en/set/

Contact person K.G.M. Braakhuis

Procedure for admission

There is no specific procedure for admission. You can just enrol for the master's programme.

There is not a strict set of modules or courses required to be admissable for the SET master's programme.
This overview shows the recommended courses preferred by the AT programme.

Block	code	name	EC	Remarks	minor
1.A	202100067	Energy Transition Perspectives	15		
1.B	202300020	Energy Transition Challenges **OR**	15		
	202000736	*Physical Transport **		*CSE M6 / AT M6b*	
	202000737	Physical Transport Phenomena	7,5		
	202000738	Project Transport Phenomena	4		
	202000739	Numerical Methods	3,5		JM
2.A	*202000137*	*Fluid Mechanics and Heat Transfer **		*ME M7*	
	202000138	Fluid Mechanics 1	3,5		
	202000139	Heat Transfer	3,5		
	202000140	Project Fluids Engineering & Ac. Skills 7	8		
	202000668	Preparation Bachelor Assignment AT	4	Year	
2.B	202000670	Bachelor Assignment	15	*AT M12*	

The overview below contains alternative modules and courses that can be taken as a good preparation for the SET master's programme.
For minor: please enroll for the minor, you don't have to enroll for the corresponding module!

Block	code	name	EC	Remarks	minor
1.A	202200071	BioRobotics **	15	Overlap with M6c **	HM
	202000230	From Science to Society: From Idea to Prototype	15	Energy theme	HM
	202001438	Innovations in Sustainable Chain Management: Analysis	15		HM
1.B	202000158	Aircraft Engineering	15		HM
	202000099	Smart ways to make SMART cities SMARTER	15		HM
	202000168	Materials for the design of the future	15	Possible overlap with Physical Chemistry of Interfaces (Materials Science and Engineering module, Module AT6a)	HM
	202000234	From Science to Society: From Prototype to Society	15	Energy theme	HM
	202001418	Innovations in Sustainable Chain Management: Design	15	Energy track	HM
2.A			11	Free choice	
	202000668	Preparation Bachelor Assignment AT	4	Year	
2.B	202000670	Bachelor Assignment	15	*AT M12*	

* There is overlap in content between 202000736 Physical Transport and 202000137 Fluid Mechanics and Heat Transfer. Combination is not allowed.
** If you also want to take both Biorobotics and AT M6c Systems&Control, first take Systems&Control and then Biorobotics with the advanced variants of Control of Robotic Systems and Biomedical Signal Analysis.

IM: in-depth minor module
JM: Join-in Minor module
HM: High Tech/Human Touch Minor module

= Pick one out of two.

Master: Water Technology

Admission requirements 2024/2025

Webpage	https://www.utwente.nl/en/education/master/programmes/water-technology/
Contact person	Karolina Smiech - karolina.smiech@wetsus.nl Valentina Sechi - valentina.sechi@wetsus.nl

Procedure for admission

Please contact Master Water Technology (MWT, information above) for an introductory meeting before the start of the master's (around the end of your third year). It is also highly recommended to visit MWT (at Wetsus in Leeuwarden) before starting the preparation for this master's.

Block	code	name	EC	Remarks
1.A	201800102	Basics for Process Simulation	5	Course as preparation for CSE M8
		Optional		
	202000733	*Industrial Processes **		*CSE M5*
	202000734	Kinetics & Catalysis	4,5	
	202000735	Ind. Chem. Proc. & Proj. Sust. Ind. Chem	8,5	
1.B	*202000736*	*Physical Transport*		*AT M6b*
	202000737	Physical Transport Phenomena	7,5	
	202000738	Project Transport Phenomena	4	
	202000739	Numerical Methods	3,5	
	202000668	Preparation Bachelor Assignment AT	4	Year
2.A	202000670	Bachelor Assignment	15	*AT M12*
2.B	*202000744*	*Process Design*		*CSE M8a*
	202000745	Intr. Chemical Reactor Engineering	4	
	202000746	Intr. Seperation Methods	4	
	202000747	Project Process Design	7	

IM: in-depth minor module
JM: Join-in Minor module
HM: High Tech/Human Touch Minor module

= Optional

* There is overlap in content between 2020000638 Physical Chemistry of Interfaces (M6a) and 202000733 Industrial Processes. Combination is not allowed.

Courses that you may consider for the design component in the AT elective space

Students who started AT during TOM 2.0 (in 2020 or later) need at least one course with a design component in the elective space (year 2 or 3). The examination board checks this on the course list that students submit before starting year 3. The required form contains the question *"With which course(s) do you fulfill the requirement to have a design project in B3, or in the elective part of B2?"*

The list below suggests suitable courses. When picking one of these suggested courses, the question on the form can simply be answered with the course name and no further explanation. Other courses that are not on this list can also be proposed, but in that case the answer to the question on the form should also explain what is the design component of this course.

Q1 and Q2 have the most options. Students who are busy during Q1 and Q2 with mandatory courses for admission to a Master's (e.g. APh/BA/NT) can always opt for AT module 11 in Q3.

In Q1

Course	ILO / description
AT M5 202000644 Electronics	**ILO: design, simulate, build and measure circuits with transistors according to a given set of specifications. (The final project of this module is the design, realization and characterization of an RF-transmit-receiver system to transmit audio wirelessly.)**
202000853 Biorobotics	ILO: Design a robot for application to a biomedical problem using multidisciplinary knowledge from mechanical, electrical, control and software engineering domains. (application and synthesis)
202000158 Aircraft Engineering	The content of the lecture series will be applied in an assignment in which a Concept Design of an Aircraft has to be made. (The details of this design process are spelled out further in the ILO's.)
202001137 Digital Hardware	Part of MAM for M-EE and EMSYS. Contains a design project with ILO: can design a system based on a list of requirements and explain how the design complies with these requirements
202000201 Project Human Product Relations	Part of MAM for M-IDE. The project brief is to design an intervention for a public space. ILO: Designing products with a specific influence on the interactions of humans and products.
202000230 Science to Society: From Idea to Prototype	During the module, you have to be creative and work in a multidisciplinary team to integrate knowledge from different domains in a product you are going to design.
202000093 Smart Cities - Multifunctional Flood Defences	ILO: integrate state-of-the-art knowledge into the design of MFDs within an interdisciplinary team; present and visualize the final design using a (physical) model.

In Q2

Course	ILO / description
AT M6c 202001142 Project Systems and Control	**ILO: get experienced designing feed-back control of linear/linearized dynamic systems**
AT M6d 202001064 Software Development (BIT) **Or 202001024 Software Systems (TCS)**	**In this module the students are introduced to the design, implementation and testing of software systems, and to performing a project independently. (The details of this design process are spelled out further in the ILO's).**
202000158 Aircraft Engineering	The content of the lecture series will be applied in an assignment in which a Concept Design of an Aircraft has to be made. (The details of this design process are spelled out further in the ILO's.)
202001032 Intelligent Interaction Design Core	Part of MAM for M-ITech. ILO: can design, develop and evaluate low fidelity and high fidelity prototypes of an intelligent interactive system that is well justified in context.
202001164 Lab on a Chip	To have the students understand, design, make and measure with a lab on a chip system for a real-life measurement problem.
202000099 Smart Ways To Make Smart Cities Smarter	During the Design Project part, students work to improve existing technologies and methods for smoother city upgrading and renewal.
202001418 Innovations in Sustainable Chain Management: Design	(Re-)Designing elements of the supply chains and relevant network is the central focus in this module. ILO: contribute to a multidisciplinary team on design efforts towards a complex societal relevant problem/challenge related to sustainable chain management.

In Q3

Course	ILO / description
AT M11 202000665 MEMS Design	**ILO: Design a micromechanical device or systems (sensors, actuators and fluidic devices or systems) based on a fixed fabrication process.**
202000077 Project Area Development	Part of MAM for M-CEM track Integrated Civil Engineering Systems. ILO: Develop and justify a functional design for area development that aligns with your strategy, vision and integrated assessments;

In Q4

Course	ILO / description
202000063 Project Designing Constructions	Part of MAM for M-CEM track Construction and M-CME
202000747 Project Process Design	Part of MAM for M-ChE track Chemical and Process Engineering. Requires extra selfstudy course (3 EC) to prepare.
AT M12 Bachelor Assignment	In principle you can fulfill the design requirement by making a design during your bachelor's assignment. If you indicate this on your course list form, you need to already have contacted a research group/supervisor and discussed concrete plans for a design-focused assignment. These plans should be explained on the course list form.