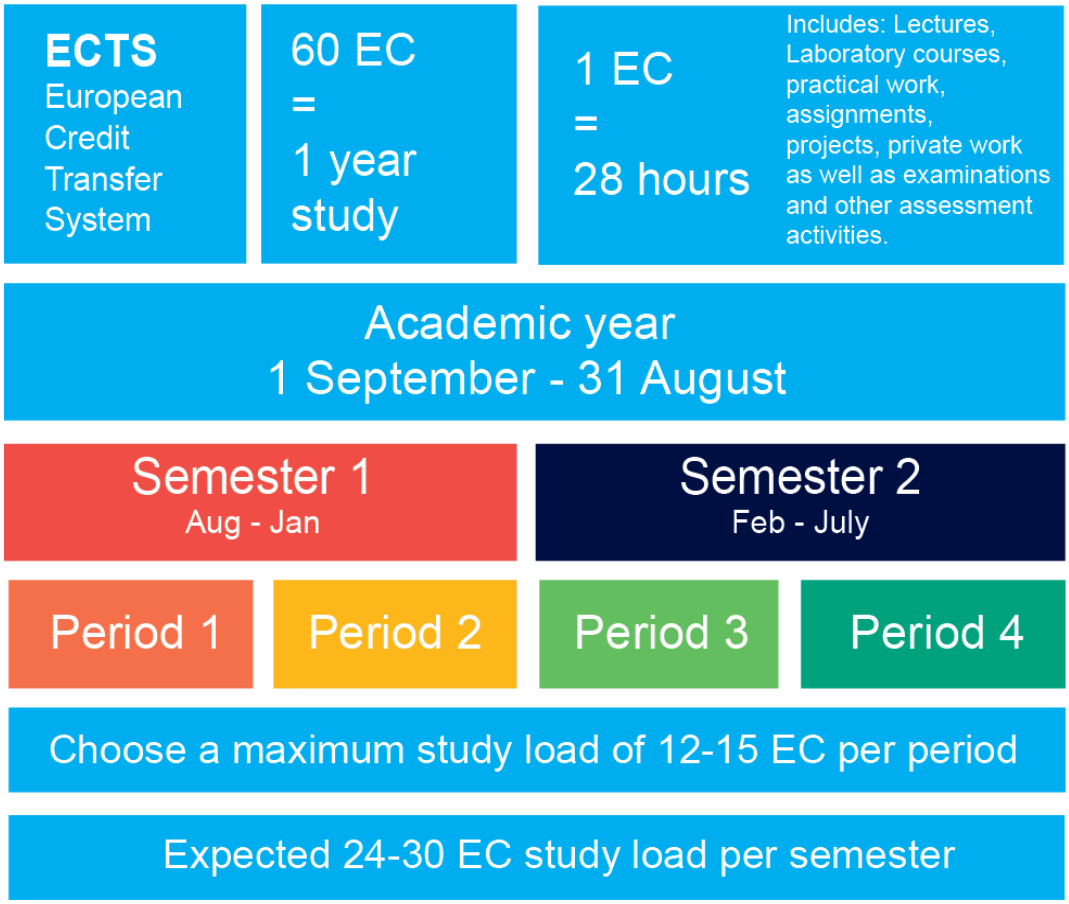
Academic Year 2024-2025

Mechanical Engineering

Exchange courses

Course selection guidelines

The table below shows how the academic year is divided and what is expected of you from each semester and/or period. With the details below of how many EC you are expected to obtain, you will be able to make a study plan that will need to be approved by your home university and TU Delft.



Things to consider when you choose your courses

1. Will you be staying for 1 or 2 semesters? This will affect the number of EC you need to choose.
2. You must take a course load equal to 24-30 EC per semester, 12-15 EC per period.
3. Changes to your course plan after your arrival still need to meet the ME- exchange requirements.
4. Carefully consider your course workload (minimum 24 EC), and the manageability of it.
5. Students are not permitted to re-sit exams after the end of the official exchange period. Alternative course/s will need to be taken at your home university when you return.
6. TU Delft- ME course form the bachelor programmes and the MSc Technical Medicine are not open for incoming exchange students.

ME course selection 2024 -2025

BSc courses

All ME bachelor (BSc) courses are taught in Dutch and therefore not available to exchange students.

Master courses

The master (MSc) programmes are taught in English. Exchange students (also BSc) can follow most master courses at the ME faculty, as long as they have sufficient background knowledge as required in the course description Course browser searcher (tudelft.nl).

Study Programme Guidelines:

- The majority of subjects (at least 70%) need to be chosen from the ME master programs. The percentages are calculated with regard to the number of EC, not the number of courses.
- Maximum 30% of the credits can be taken at other TU Delft faculties as mentioned in the TU Delft courses in English list. , with the exception of courses from;
  The Faculty of Industrial Design Engineering and the Faculty of Architect and the Built Environment; these courses are not available for ME exchange students.
  The Faculty of Aerospace Engineering ; AE-courses have limited access for incoming ME exchange students. The course restrictions are mentioned in the Course list AE 2024-2025 Spring 2025 v1.pdf (tudelft.nl).
- Exchange students are responsible for ensuring they meet all prerequisites for the courses they select at TU Delft as mentioned in the Course browser searcher (tudelft.nl)
- When enrolled in a course that includes group work, students are required to actively contribute and complete the assignment. Dropping out is not permitted.
- ME courses not listed in the provided course options are not available for incoming exchange students.
- Master graduation (Thesis) research -related courses are not open to exchange students.

Minor Courses

Exchange Students nominated through faculty ME are not allowed to take a fixed minor unit or separate minor courses at the faculty of ME or any other faculty at TU Delft, unless pre- arranged and approved by the Exchange-ME@tudelft.nl

Project Work

- Project work opportunities are limited and must be arranged directly with the research department by the students themselves and approved by the Exchange-ME@tudelft.nl
- Project arrangements are primarily for exchange students staying for the full academic year.
- The maximum workload for a project cannot exceed 25% of the total ECTS expected during an academic year, with a maximum of 15 ECTS.
- Please note that project work will only be graded on a pass/fail basis.
- In case students wish to do only a project or thesis research, they cannot be admitted as exchange students. Instead, they will be registered by the research department as unpaid guest researchers (internship students).
- Students registered as an unpaid quest researcher cannot follow subjects.

For further questions and help with finding the best subjects for your case, please email our international office: Exchange-ME@tudelft.nl

ME courses available during the Fall Semester (Sept- Febr 2024-2025)

Disclaimer; *Please note that this list is an overview of course options. The course availability as listed in this overview cannot be fully guaranteed. The most recent course information can be found at www.studyguide.tudelft.n l In the case of conflicting information, the study guide is leading. No rights can be derived from this list. This list is subject to change without notice.*

Course code	Course name (EN)	ECTS	Language	Start of Education	Education periods
Master Mechanical Engineering					
ME45042	Advanced Fluid Dynamics	5	EN	1, 2	1, 2, 3
ME41096	Bio Inspired Design	5	EN	1, 2	2
ME46115-23	Compliant Mechanisms	4	EN	1	1,2
ME44101	Dynamics and Interaction of Material and Equipment	4	EN	1, 2	1,2
ME44206	Quantitative Methods for Logistics	5	EN	1, 2	1, 2,3
ME44210	Drive and Energy Systems	3	EN	1	1, 2
ME45001	Advanced Heat Transfer	4	EN	1	1, 2
ME46006	Physics for Mechanical Engineers	4	EN	1	1, 2
ME46055	Engineering Dynamics	4	EN	1	1, 2
ME45225	Multiphysics transport in Energy Materials	3	EN	1	1, 2
ME46300	Optics	4	EN	1	1,2
ME46310	Opto-Mechatronics	4	EN	1,2	2,3
ME41106	Intelligent Vehicles 3ME	5	EN	2	2,3
ME46085-23	Mechatronic System Design	4	EN	2	2, 3
ME45160	Advanced Applied Thermodynamics	5	EN	2	2, 3
ME45111	Buildings as Energy and Indoor Climate Systems'	5	EN	2	2, 3
ME45170	Turbomachinery	4	EN	2	2,3
ME46095	Multiphysics Modelling using COMSOL	4	EN	2	2
MS43325	Application of Materials in High Tech Engineering	3	EN	2	2,3
ME44106	Structural Design with FEM	4	EN	2	2,3
ME44115	Discrete Element Method (DEM) simulation	4	EN	2	2
ME46000	Non-linear Mechanics	4	EN	2	2, 3
Master Biomedical Engineering					
ME41096	Bio Inspired Design	5	EN	1	1,2
BM41131	Tissue Biomechanics	3	EN	1	1
BM41055	Anatomy and Physiology	4	EN	1	1, 2, 2, 3
BM41095	Medical Devices: Past, Present, Future	3	EN	1	1, 2
BM41141	Fundamentals of Biomedical Engineering	3	EN	1	1, 2
BM41155	3D Printing	5	EN	1	2, 3
BM41035	Biomaterials	4	EN	2	2, 3
BM41170	Physiological Flows & Transport	4	EN	2	2
Master Materials Science and Engineering					
MS43810	Materials in Art and Design	3	EN	1	1
MS43045	Society's Needs: Case Studies and Materials Challenges	4	EN	1	1
MS43006	Structure and Properties of Materials	6	EN	1	1, 2, 3

MS43025	Mechanical Behaviour of Materials	4	EN	1	1, 2
MS43035	Thermodynamics and Kinetics of Materials	3	EN	1	1, 2
MS43215	Steel Science	3	EN	1	1,2
MS43220	Corrosion Science	3	EN	1	1,2
MS43330	Sustainable Metals Production	4	EN	1	1, 2
MS43702	Materials Elective R I	2	EN	1	1,2,3,4
MS43706	Materials Elective R II	6	EN	1	1,2,3,4
MS43011	Characterisation of Materials	5	EN	2	2, 3
MS43016	Metals Science	3	EN	2	2, 3
MS43050	Polymer Science	4	EN	2	2,3
MS43315	Recycling Engineering Materials	4	EN	2	2, 3
MS43325	Application of Materials in High Tech Engineering	3	EN	2	2, 3
Master Marine Technology					
MT44030	Advanced Mechanics of Maritime Structures	5	EN	1	1
MT44050	Fundamentals of Marine Engineering	5	EN	1	1,2
MT44090	Fluid - Structure Interaction in Maritime Structures	5	EN	1	1
MT44095	Design of Advanced Marine Vehicles	5	EN	1	1, 2
MT44021	Motions and Loading of Structures in Waves	5	EN	2	2,3
MT44040	Maritime Finance, Business and Law	5	EN	2	2
Master Offshore and Dredging Engineering					
OE44205	Offshore Geotechnical Engineering	5	EN	1	1,2
OE44150	Marine Hydromechanics	5	EN	1	1,2
OE44170	Offshore Renewables Technologies	5	EN	1	1
OE44175	Structural Mechanics of Offshore Structures	5	EN	2	2,3
OE44180	Seabed Preparation and Installation Processes	5	EN	2	2
MT44021	Motions and Loading of Structures in Waves	5	EN	2	2,3
Master Robotics					
RO47001	Robot Dynamics & Control	5	EN	1	1,2
RO47002	Machine Learning for Robotics	5	EN	1	1,2
RO47003	Robot Software Practicals	5	EN	1	1,2
RO47004	Machine Perception	5	EN	2	2, 3
RO47005	Planning & Decision Making	5	EN	2	2, 3
RO47006	Human Robot Interaction	5	EN	2	2, 3
Master Systems and Control					
SC42015	Control theory	6	EN	1	1,2
SC42056	Optimization for Systems and Control	3	EN	1	1,2
SC42150	Statistical Signal Processing	3	EN	1	1,2
SC42155	Modelling of Dynamical Systems	3	EN	1	1,2
SC47500	Tensor methods for sustainable AI and signal processing	4	EN	1	1
SC42025	Filtering and Identification	6	EN	2	2,3
SC42165	Machine Learning for Systems & Control	3	EN	2	2,3
SC42095	Digital Control	3	EN	2	2, 3
SC42145	Robust Control	3	EN	2	2
SC42001	Control Systems Design	3	EN	5	1,2

ME courses available during the Spring Semester (Sept- Febr 2024-2025)

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Course code	Course name (EN)	ECTS	Language	Start of Education	Education periods
Master Mechanical Engineering					
ME46007	Measurement Technology	3	EN	3	3, 4
ME46015-23	Precision Mechanism Design	4	EN	3	3, 4
ME41120	Freehand Sketching of Products and Mechanisms	3	EN	3	3
ME46070	Fundamentals of Mechanical Analysis	4	EN	3	3, 4
ME45165	Equipment for Heat and Mass Transfer	5	EN	3	3, 4
ME45026	Introduction to Multiphase Flows	3	EN	3	3, 4
ME45075	Refrigeration and Heat Pumps Fundamentals	4	EN	3	3, 4
ME45204	Electrochemical Energy Storage	4	EN	3	3,4
ME46020	Micro- and Nanosystems Design and Fabrication, incl. MEMS Lab.	4	EN	3	3
ME46010	Intro to Nanoscience and Technology	3	EN	3	3, 4
ME46120	Predictive Modelling	4	EN	3	3
ME44110	Integrated Design Project for Multi-Machine Systems	5	EN	3	3, 4
ME44200	Operations and Maintenance	3	EN	3	3
ME44125	Reliability and Maintenance of Transport Equipment	3	EN	3	3
ME44312	Machine Learning for Transport and Multi-Machine Systems	3	EN	3	3
MT44001	Mechatronics in MT	5	EN	3	3
ME46060	Engineering Optimisation: Concepts and Applications	3	EN	3	3
ME41056	Multibody Dynamics	5	EN	3, 4	4, 5
ME41085	Biomechatronics	4	EN	3, 4	4
ME46050	Advanced Finite Element Methods	4	EN	3, 4	4
ME45030	Turbulence	5	EN	3, 4	4,5
ME45155	Computational Fluid Dynamics for Mechanical Engineers	5	EN	3, 4	4, 5
ME45050	Microfluidics: Applied theory and lab	3	EN	3, 4	3, 4, 5
ME44305	System Analysis and Simulation	5	EN	3, 4	4
ME44311	Advanced Operations and Production Management	5	EN	3, 4	4
ME41006	Musculoskeletal Modelling and Simulation	4	EN	4	4
ME41035	Special Topics in Sports Engineering	3	EN	4	4
ME41125	Introduction to Engineering Research	3	EN	4	4
ME45134	Process and Power Plant Design	4	EN	4	4,5
ME45203	Electrolysers, Fuel Cells and Batteries	4	EN	4	4,5
ME45211-23	Particle-based modeling of fluids	5	EN	4	4
ME45215	Rheology of Complex Fluids	3	EN	4	4
ME45220	Experimental Techniques in Fluid Mechanics	3	EN	4	4
ME46025	Manufacturing for the Micro and Nano Scale	3	EN	4	4
ME46072	Non-linear Dynamics	4	EN	4	4,5
ME46125	Micro and Nanofabrication for Cell Biology and Tissue Engineering	3	EN	4	4
ME44300	Multi-Machine Coordination for Logistics	3	EN	4	4, 5
ME46035	Stability of Thin-Walled Structures 1	4	EN	4	4

ME46065	Thin Film Materials	3	EN	4	4
ME44312	Machine Learning for Transport and Multi-Machine Systems	3	EN	3	3
Master Biomedical Engineering					
BM41175	Digital Twins in Healthcare	4	EN	3	3,4
BM41040	Neuromechanics and Motor Control	5	EN	3	3, 4
BM41070	Medical Device Prototyping	6	EN	3	3,4
BM41090	Computational Mechanics of Tissues and Cells	6	EN	3	3, 4
BM41100	Medical Devices: Designing for CE-marking	3	EN	3	3
BM41050	Applied Experimental Methods: Medical Instruments	4	EN	4	4
ME41006	Musculoskeletal modeling and simulation	4	EN	4	4
BM41075	Regenerative Medicine	4	EN	4	4
Master Materials Science and Engineering					
MS43020	Computational Materials Science	3	EN	3	3, 4
MS43030	Processing of Materials	3	EN	3	3, 4
MS43100	Science of Failure	3	EN	3	3,4
MS43305	Materials for Hydrogen and Solar Energy Technology	4	EN	3	3, 4
MS43040	Machine Learning for Materials Design	4	EN	3	3
MS43825	Radiation damage in materials	4	EN	3	3,4
MS43120	Corrosion Engineering	3	EN	4	4,5
MS43110	Joining Technologies	3	EN	4	4,5
MS43115	Materials Selection for Engineering Applications	3	EN	4	4
MS43210	Advanced Characterisation	4	EN	4	4,5
MS43200	Metals Science II	4	EN	4	4,5
MS43205	Computational Materials Science II	3	EN	4	4,5
MS43310	Materials at High Temperature	4	EN	4	4,5
MS43805	Metallic Materials in Maritime Structures	5	EN	4	4,5
Master Marine Technology					
MT44035	Design of Complex Specials	5	EN	3	3
MT44001	Mechatronics in MT	5	EN	3	3
MT44025	Numerical Ship Hydrodynamics	5	EN	3	3
MT44061	Advanced Course in Resistance and Propulsion	5	EN	3	4
MT44070	Shipping Management	5	EN	3	3, 4
MT44100	Internal Combustion Engines A	5	EN	3	3,4
MT44006	Future Marine Propulsion Systems	5	EN	4	4,5
MT44010	Non-metallic materials in Maritime Structures	5	EN	4	4,5
MT44085	Ultimate Strength of Maritime Structures	5	EN	4	4
MT44105	Internal Combustion Engines B	5	EN	4	4,5
Master Offshore and Dredging Engineering					
OE44085	Fatigue in Offshore Structures	5	EN	3	3
OE44215	Marine Pipelines	5	EN	4	4,5
OE44185	Numerical Methods for Offshore and Dredging Engineering	7	EN	4	4
Master Robotics					
RO47008	Robot & Society	5	EN	3	3, 4
RO47013	Control in Human-Robot Interaction	5	EN	3	3, 4
RO47014	Knowledge Representation & Symbolic Reasoning	5	EN	3	3, 4
RO47018	Security and Privacy in Control	3	EN	3	3, 4
RO47015	Applied Experimental Methods	5	EN	4	4, 5

RO47017	Vehicle Dynamics and Control	5	EN	4	4, 5
RO47019	Intelligent Control Systems	4	EN	4	4, 5
RO47020	Advanced Machine Perception	5	EN	4	4
Master Systems and Control					
SC42125	Model Predictive Control	4	EN	3	3
SC42140	Signal Analysis and Learning for Two-Dimensional Systems	3	EN	3	3,4
SC42160	Data Compression: Entropy and Sparsity Perspectives	5	EN	3	3, 4
SC42170	Probalistic Sensor Fusion	3	EN	3	3, 4
SC42030	Control for High Resolution Imaging	3	EN	4	4
SC42065	Adaptive Optics Design Project	3	EN	4	4
SC42075	Modeling and Control of Hybrid Systems	3	EN	4	4,5
SC42101	Networked and Distributed Control Systems	4	EN	4	4,5
SC42110	Dynamic Programming and Stochastic Control	5	EN	4	4,5
SC42130	Fault Diagnosis and Fault Tolerant Control	4	EN	4	4,5
SC42061	Nonlinear Control Systems	3	EN	4	4,5