



Programme syllabus

[An accessible version of the syllabus can be found in the Course and programme directory.](#)

Degree Programme in Mechanical Engineering 300 credits

Civilingenjörsutbildning i maskinteknik

Valid for students admitted to the education from autumn 18 (HT - Autumn term; VT - Spring term).

This is a translation of the Swedish, legally binding, programme syllabus.

Programme objectives

In addition to the objectives specified in the Swedish Higher Education Ordinance, a graduate Master of Science in Engineering from Mechanical Engineering at KTH shall:

Knowledge and understanding

- demonstrate broad knowledge within the chosen technical field, including knowledge in mathematics and natural science, and substantial specialised knowledge within certain parts of the field

- possess good knowledge and expertise in the issues and areas of sustainable development, gender equality, equal opportunities and diversity
- have a broad scientific foundation that enables them to work within a number of technical fields with product development, production and manufacturing technology and energy issues. This may include material selection, energy sources, production methods of the assessment of economic and environmental impact, etc.

Skills and abilities

- demonstrate a good ability to, independently and in a group, apply knowledge and skills in practice while taking into account relevant scientific, professional/profession-related and societal assessments and standpoints
- demonstrate proficiency in being able to formulate, analyse, evaluate and manage technical problems and issues from a systems perspective, with a holistic view of their life cycle, from concept/requirements to specification, development, operation and decommissioning, and an ability to set boundaries, minimise necessary resource consumption and manage processes for problem-solving/realisation
- show some ability to lead operations at different organisational levels, in different types of organisational life-cycle stages, within different types of logical frameworks
- possess the requisite personal and professional skills, such as in the area of language, leadership, project management, sustainable systems analysis, gender equality, equal opportunities and communication, to work as an engineer in a management position or as a leader within a technology-intensive company

Ability to make judgements and adopt a standpoint

- have a particularly good understanding of the fact that engineering problems are often complex, can be incompletely defined and sometimes involve conflicting conditions
- adopt a reflective approach
- demonstrate accountability with regard to issues within technical, organisational, economic, ecological and societal systems.

Extent and content of the programme

The Degree Programme in Mechanical Engineering comprises 300 credits, which corresponds to 5 years of full-time studies at a normal study pace (10 semesters).

The programme's first three years (180 credits) are primarily first cycle.

During the two final years (120 credits), the student undertakes a Master's programme.

Master's programme courses are conducted primarily in the second cycle.

International profile

The Degree Programme in Mechanical Engineering contains an international study profile. This profile is chosen during the spring semester of year 1. Year 2 offers language studies in German, French or Spanish with subsequent exchange studies in year 3 at one of the European universities involved in the cooperation. The course package offered during the stay abroad is integrated in the Degree Programme in Mechanical Engineering and corresponds to courses normally taken in year 3 at KTH.

The academic year 2018/2019 offers the following Master's programmes for a Degree of Master of Science in Mechanical Engineering*:

- Aerospace Engineering
- Vehicle Engineering
- Sustainable Energy Engineering
- Industrial Management
- Production Engineering Management
- Engineering Design
- Integrated Product Design
Track, Innovation Management and Product Development
- Nuclear Energy Engineering
- Naval Architecture
- Applied and Computational Mathematics
- Engineering Mechanics
- Sustainable Technology

**The range of offered Master's programmes may be revised. An updated list of elective Master's programmes can be found on the KTH student web for each respective academic year.*

For students undertaking any of the following Master's programmes:

Industrial Management, Applied and Computational Mathematics or Sustainable Technology, a supplementary engineering profile is required to obtain a Degree of Master of Science in Mechanical Engineering.

The following international Master's programmes also leads to a Degree of Master of Science in Mechanical Engineering, but the student applies in an admissions round in competition with all other applicants.

There is no guarantee of places for these programmes:

- Environomical Pathways for Sustainable Energy Systems (SELECT)
- Turbomachinery Aeromechanic University Training (THRUST)
- Management and Engineering of Environment and Energy (ME3)

Language of instruction

The language of instruction for the first three years of first cycle is mainly Swedish, but English literature is common. The courses in the final two years are mostly conducted in English.

Eligibility and selection

Admission to the Degree Programme in Mechanical Engineering requires the general entry requirements for higher education, and also special admission requirements as follows:

Upper-secondary education from 1 July 2011 and upper-secondary adult education from 1 July 2012 (Gy11/Vux12)

Field-specific entry requirement A9

Specific admission requirements corresponding to:

Mathematics 4, Physics 2 and Chemistry 1.

A grade of E is required as a minimum in each of the subjects.

Upper-secondary education before 1 July 2011 and upper-secondary adult education before 1 July 2012

Field-specific entry requirement 9

Specific admission requirements corresponding to:

Mathematics E, Physics B and Chemistry A.

In each of the subjects, a minimum grade of Pass or 3 is required.

* For more information on field-specific entry requirements, see www.uhr.se

For entry requirements and selection principles, see the KTH admission regulations, <https://intra.kth.se/regelverk/utbildning-forskning/grundutbildning/antagning/1-antagningsordning-for-utbildning-pa-grundniva-och-avancerad-niva-1.27186>

Implementation of the education

Structure of the education

Academic year

The academic year comprises 40 weeks and is divided into four periods. If necessary, instruction may be provided outside the parameters of the academic year.

Years 1-3, studies at first cycle

1. The programme consists of compulsory courses in years 1-3 in the first cycle (G).

The programme is organised around courses in applied subjects relating to mathematics, engineering science and technology. The teaching and use of professional skills and abilities of great importance to a certified engineer, for example, corporate and societal aspects, communication and sustainable development, are integrated into the courses.

To create a unified whole, the programme emphasises cooperation between different subjects, both within a specific year and between years. This is achieved through courses being coordinated on the schedule, via joint degree projects and written assignments.

The programme is designed so that the student, after three years, has the opportunity to obtain a technical Degree of Bachelor: This is to increase mobility and make it easier for the student to continue their studies at KTH or another university in Sweden or abroad.

The first 3 years conclude with a degree project for a Degree of Bachelor worth 15 credits within a chosen technical field. After successfully completing 180 credits, the student can apply for a technical Degree of Bachelor. If the qualification requirements are met, a Degree of Bachelor of Science is obtained.

Mathematical natural science courses

This block contains basic courses in mathematics and natural science and is chiefly located in year 1 and year 2.

Technology courses

For the Mechanical Engineering Degree Programme, this block includes basic engineering science courses within the field of mechanical engineering, such as solid mechanics, thermodynamics and engineering design. This block is begun in year 1 and concluded in year 3.

Years 4-5 Studies at second cycle

The Master's programmes consist mainly of advanced courses and a degree project within one and the same engineering science discipline.

Students on the Mechanical Engineering Programme can choose from a range of Master's programmes with programme syllabuses established in advance. There is no restriction on the number of places for students on the Mechanical Engineering Programme.

Elective Master's programmes that lead to a Degree of Master of Science in Engineering are found under the heading "Scope and content of the programme" above.

Courses

The programme is course-based. Lists of courses are included in appendix 1.

The programme consists of compulsory, conditionally elective, recommended and optional courses. The compulsory and conditionally elective courses are defined for each year in course lists. The goals, entrance qualifications, content and course requirements for each course can be found in the official course syllabuses.

The forms of teaching and examination vary between courses. These are indicated in each official course syllabus.

The optional courses can be chosen from KTH's range of offered courses. Credits from courses at other universities/higher education institutions can also be transferred if the qualification requirements are met.

The following limitations apply to optional courses:

- Optional courses may not be taken in year 1.
- The number of credits that may be chosen per semester is limited to 35.
- An optional course may not correspond to a significant extent to an existing programme course or an already credited course
- Higher education preparatory courses may not be counted as optional courses
- Optional courses may be chosen but should be relevant to the professional role of engineer

Grading system

Courses in the first and the second cycle are graded on a scale from A to F. A-E are passing grades, A is the highest grade. The grades pass (P) and fail (F) are used for courses under certain circumstances.

Grading scale is found in the course syllabus

Conditions for participation in the programme

Participation requires admission to courses within the programme and course registration.

For further studies, special admission requirements for the course are to be fulfilled. Special admission requirements are listed in the respective course syllabus.

International profile

For studies in year 2 with an international profile

- at least 45 credits according to the course list of the programme syllabus from year 1. This is to be achieved by the end of the re-examination period in August.
- proficient in either Spanish, German or French equivalent to level A1 and demonstrated through a compulsory placement test taken prior to the choice of courses.

For studies in year 3 with an international profile

- at least 90 credits according to the course list of the programme syllabus from year 1 and 2. This is to be achieved by the end of the re-examination period in August.
- the student must be proficient in either Spanish, German or French equivalent to level B1.
- fulfil any requirements of the host university and be formally accepted as an exchange student there.

Application for courses on the programme

Prior to each semester, the student must apply for all courses the student intends to take. Course applications are made via www.antagning.se

- 1 - 15 May for autumn semesters
- 1 - 15 November for spring semesters

If the student does not apply via www.antagning.se, the application is only considered subject to availability.

The student can obtain information on how to apply from the school's office of student affairs.

Course registration

Course registration requires that the student is admitted to the course. At course start, the student must register on the course to which they have been admitted. Course registration must be done individually, either via the student's personal login at www.kth.se or according to instructions from the school offering the course.

A person who has registered on a course, but has subsequently decided not to proceed with the course, must inform the school offering the course as soon as possible or, within three weeks, remove the course registration via the personal login at www.kth.se

Choice of Master's programme

Prior to year 4/ Master's programme year 1, second cycle, the student chooses a Master's programme within the framework of their Degree Programme.

Choice of Master's programme is made by the students within the Degree Programme according to instructions from the KTH admissions office.

Admission requirements for Master programmes

According to the KTH Admission regulations 2018 (Dnr. V-2017-1014)

"In order to be eligible for advanced level studies within the integrated Master of Science programmes at KTH, you are required to complete 150 credits from year one through three. Of these, 110 credits must be from the year 1 and 2 curriculum. In addition to these credits, the bachelor thesis needs to be completed before Master's level studies commence."

Degree project

Degree Project, First Cycle

Within the degree programme a degree project, first cycle, which comprises 15 credits, is included. The degree project course can be commenced when the special admission requirements listed in the course syllabus are met.

Degree project, Second Cycle

The Degree Programme in Mechanical Engineering includes a degree project for a Degree in Master of Science in Engineering, which comprises 30 credits.

The degree project is the final part of the education.

In order to fulfill specific admission requirements for a Degree Project, second cycle, 30 credits, all courses in study year 1-3, first cycle, or courses required for the award of a Bachelors's degree, and courses corresponding to at least 60 credits, second cycle, must be completed. The courses at the second cycle, shall include courses in the programme relevant to the degree project, as well as courses in science theory and research methodology.

Degree

In order to complete a Degree in Master of Science in Engineering, Degree Program Mechanical Engineering, requires an approved grade in all courses included in the students study plan based on the degree programme. The study plan shall comprise 300 credits, which includes a degree project, first cycle comprising 15 credits and a degree project, second cycle comprising 30 credits.

Optional introductory courses and preparatory courses cannot be included as part of the degree.

Courses whose content is similar to one or more other courses within the programme cannot be counted as part of the 300 credits that form the basis for the degree.

Optional courses will contribute to the degree programme objectives of mechanical engineering and the professional role.

Application for a degree certificate

The student must personally apply for a certificate. Applications are made via a personal login at www.kth.se.

The student has the possibility of applying for the following degree:

Title of general qualification at first cycle

Bachelor of Science (180 credits)

Teknologie kandidatexamen

Title of professional qualifications at second cycle

Master of Science in Engineering

Civilingenjörsexamen

Appendix 1 - Course list

Appendix 2 - Programme syllabus descriptions



Appendix 1: Course list

Degree Programme in Mechanical Engineering (CMAST)

General courses

Year 1

Mandatory courses (60.0 Credits)

Code	Name	Credits	Edu. level
MJ1103	Introduction to Mechanical Engineering	10.5 hp	First cycle
SF1511	Numerical Methods and Basic Programming	9.0 hp	First cycle
SF1624	Algebra and Geometry	7.5 hp	First cycle
SF1625	Calculus in One Variable	7.5 hp	First cycle
SF1626	Calculus in Several Variables	7.5 hp	First cycle
SG1130	Mechanics I	9.0 hp	First cycle
SK1112	Physics I	9.0 hp	First cycle

Year 2

Mandatory courses (60.0 Credits)

Code	Name	Credits	Edu. level

ME1003	Industrial Management, Basic Course	6.0 hp	First cycle
MF1016	Basic Electrical Engineering	9.0 hp	First cycle
MF1044	Machine Components	6.0 hp	First cycle
MG1026	Manufacturing Technology	6.0 hp	First cycle
MJ1112	Applied Thermodynamics	9.0 hp	First cycle
SE1010	Solid Mechanics, Basic Course with Project	12.0 hp	First cycle
SF1633	Differential Equations I	6.0 hp	First cycle
SG1140	Mechanics II	6.0 hp	First cycle

Conditionally elective courses

Code	Name	Credits	Edu. level
MG1028	Introductory 3D CAD <i>Mandatory for students admitted from COPEN</i>	1.5 hp	First cycle

Supplementary information

Year 3

Mandatory courses (18.0 Credits)

Code	Name	Credits	Edu. level
MF1045	Product realization - Engineering Design	6.0 hp	First cycle
MH1004	Engineering Materials	6.0 hp	First cycle
SF1915	Probability Theory and Statistics	6.0 hp	First cycle

Conditionally elective courses

Code	Name	Credits	Edu. level
AL126X	Degree Project in Technology and Sustainable Development, First Cycle	15.0 hp	First cycle
MF130X	Degree Project in Machine Design, First Cycle	15.0 hp	First cycle

MF131X	Degree Project in Integrated Product Development, First Cycle	15.0 hp	First cycle
MF133X	Degree Project in Mechatronics, First Cycle	15.0 hp	First cycle
MG110X	Degree Project in Production Engineering, First Cycle	15.0 hp	First cycle
MJ146X	Degree Project in Sustainable Energy Engineering, First Cycle	15.0 hp	First cycle
SA118X	Degree Project in Mechanical Engineering, First Level	15.0 hp	First cycle

Supplementary information

During year 3, an in-depth study in the field of mechanical engineering takes place by choosing conditional optional courses.

Which courses are chosen is governed by which master's program is planned to be taken during the two final years of the program.

Under each specialisation, there is information about the courses to be taken to give admission to the various master's programs that are read in the two final years.

During the spring term in year 3, a bachelor's degree project in a chosen area will be read.

Masters programs leading to the degree in Master of Science in Mechanical Engineering are specified in the program syllabus for batch Autumn 2018.

For more information about the qualifying courses, see respective directions.

Information regarding conditionally elective courses

A degree project for Degree of Bachelor must be read during study year 3, independently of chosen masters programme.

Year 4

Supplementary information

During the fourth study year of the *Degree Programme in Mechanical Engineering*, a master's programme must be studied.

Information about which master's programme can be studied, can be found in the programme syllabus. Changes may occur.

For students who chooses to study one of the following master's programme:

Industrial Economics (TINEM), Applied Mathematics and Computational Mathematics (TTMAM) or Technology and Sustainable Development (TSUTM)

it is required that a supplementary technical profil is read in order to obtain a Degree of Master of Science in Engineering.

The following technical profiles can be studied during study year 4-5 (ie during study year 1-2 of the master's programme):

- Industrial Management (*Technical Profile: Engineering Design, Energy, Production or Solid Mechanics*)
- Applied and Computational Mathematics (*Technical Profile: Production and Energy or Solid Mechanics*)
- Sustainable Technology (*Technical Profile: Engineering Design, Energy, Production or Solid Mechanics*)

Year 5

Supplementary information

Information is based upon the curriculum for academic year 2014/15. Changes may occur.

Master's programmes leading to Master of Science in Engineering degree:

- Aerospace Engineering
- Vehicle Engineering
- Sustainable Energy Engineering
- Industrial Management
- Integrated Product Design (Tracks Integrated product design and Product innovation)
- Production Engineering Management
- Engineering Design
- Nuclear Energy Engineering
- Mathematics (Track Mathematical statistics and financial mathematics, Track Computational mathematics and Track Optimization and systems theor)
- Naval Architecture
- Sustainable Technology
- Engineering Mechanics

Some Masterprograms require specific courses during year 3.

Master, Aerospace Engineering (AEE)

Year 3

Mandatory courses (24.0 Credits)

Code	Name	Credits	Edu. level
EL1010	Automatic Control, General Course	6.0 hp	First cycle
MF1045	Product realization - Engineering Design	6.0 hp	First cycle
MH1004	Engineering Materials	6.0 hp	First cycle
SF1915	Probability Theory and Statistics	6.0 hp	First cycle

Conditionally elective courses

Code	Name	Credits	Edu. level
SG1217	Fluid Mechanics, Basic Course <i>One of the courses SG1217 or SG1220 must be chosen.</i>	6.0 hp	First cycle
SG1220	Fluid Mechanics for Engineers <i>One of the courses SG1220 or SG1217 must be chosen.</i>	6.0 hp	First cycle

Recommended courses

Code	Name	Credits	Edu. level
DD1321	Applied Programming and Computer Science	9.0 hp	First cycle
ME2015	Project Management: Leadership and Control	6.0 hp	Second cycle
MG1002	Automation Technology	6.0 hp	First cycle
MG1024	Production	6.0 hp	First cycle
MH1023	Practical Gender Equality and Diversity Work in Scientific, Technical and Industrial Environments	6.0 hp	First cycle
MJ1401	Heat Transfer	6.0 hp	First cycle
SD1116	Design of Silent and Vibration-free Products	6.0 hp	First cycle
SE1025	FEM for Engineering Applications	6.0 hp	First cycle

Supplementary information

A degree project for Degree of Bachelor must be chosen during study year 3, independently of chosen masters programme.

The Degree projects, first cycle, that can be selected are available as *conditional elective* courses under the heading "General" - "General courses".

Information regarding conditionally elective courses

One of the conditionally elective courses SG1217 or SG1220 must be chosen during study year 3.

Master, Vehicle Engineering (FOR)

Year 3

Mandatory courses (24.0 Credits)

Code	Name	Credits	Edu. level
EL1010	Automatic Control, General Course	6.0 hp	First cycle
MF1045	Product realization - Engineering Design	6.0 hp	First cycle
MH1004	Engineering Materials	6.0 hp	First cycle
SF1915	Probability Theory and Statistics	6.0 hp	First cycle

Conditionally elective courses

Code	Name	Credits	Edu. level
DD1321	Applied Programming and Computer Science	9.0 hp	First cycle
ME2015	Project Management: Leadership and Control	6.0 hp	Second cycle
MG1002	Automation Technology	6.0 hp	First cycle
MG1024	Production	6.0 hp	First cycle
MH1023	Practical Gender Equality and Diversity Work in Scientific, Technical and Industrial Environments	6.0 hp	First cycle
MJ1401	Heat Transfer	6.0 hp	First cycle
SD1116	Design of Silent and Vibration-free Products	6.0 hp	First cycle
SE1025	FEM for Engineering Applications	6.0 hp	First cycle

SG1217	Fluid Mechanics, Basic Course <i>SG1220 can be chosen instead of SG1217</i>	6.0 hp	First cycle
SG1220	Fluid Mechanics for Engineers <i>SG1217 can be chosen instead of SG1220.</i>	6.0 hp	First cycle

Supplementary information

A degree project for Degree of Bachelor must be chosen during study year 3, independently of chosen masters programme.

The Degree projects, first cycle, that can be selected are available as *conditional elective* courses under the heading "General" - "General courses".

Information regarding conditionally elective courses

At least one of the conditionally elective courses must be chosen during study year 3.

Master, Industrial Management (INE)

Year 3

Mandatory courses (30.0 Credits)

Code	Name	Credits	Edu. level
ME2015	Project Management: Leadership and Control	6.0 hp	Second cycle
ME2163	Leading People and Organizations in Different Contexts	6.0 hp	Second cycle
MF1045	Product realization - Engineering Design	6.0 hp	First cycle
MH1004	Engineering Materials	6.0 hp	First cycle
SF1915	Probability Theory and Statistics	6.0 hp	First cycle

Conditionally elective courses

Code	Name	Credits	Edu. level
DD1321	Applied Programming and Computer Science	9.0 hp	First cycle
EL1010	Automatic Control, General Course	6.0 hp	First cycle
MG1002	Automation Technology	6.0 hp	First cycle

MG1024	Production	6.0 hp	First cycle
MH1023	Practical Gender Equality and Diversity Work in Scientific, Technical and Industrial Environments	6.0 hp	First cycle
MJ1401	Heat Transfer	6.0 hp	First cycle
SD1116	Design of Silent and Vibration-free Products	6.0 hp	First cycle
SE1025	FEM for Engineering Applications	6.0 hp	First cycle
SG1217	Fluid Mechanics, Basic Course <i>SG1220 can be chosen instead of SG1217.</i>	6.0 hp	First cycle
SG1220	Fluid Mechanics for Engineers <i>SG1217 can be chosen instead of SG1220.</i>	6.0 hp	First cycle

Supplementary information

A degree project for Degree of Bachelor must be chosen during study year 3, independently of chosen masters programme.

The Degree projects, first cycle, that can be selected are available as conditional elective courses under the heading "General" - "General courses".

CMAST-students at Masters programme, Industrial Management (TINEM)

A technical profile specified within the study year plan for Degree Programme in Mechanical Engineering must be chosen

One of the following profiles can be chosen during study year 4-5:

- **Technical profile Construction**

Courses corresponding to at least 18 credits, listed below, shall be taken during study year 4-5:

MF2101 Machine Design 6 credits

MF2102 Machine Design Project 6 credits

MF2010 Component Design 6 credits

MF2011 Systems Engineering 9 credits

MF2019 CAD 3D-modelling and Visualization 6 credits *

MF2024 Robust and Probabilistic Design 6 credits

** will be able to study in period 2 and 4*

- **Technical profile Energy**

MJ2413 Energy and Environment 6 credits

MJ2411 Renewable Energy Technology 6 credits *

MJ2380 Introduction to Energy Systems Analysis and Applications 9 credits

**can also be chosen study year 5*

- **Technical profile Production**

MG2029 Production Engineering - Planning and Control 6 credits

(MG1024 Production in study year 3, is the eligibility course for MG2029)

One of the following two courses must be chosen:

MG2028 CAD and Other IT Tools in Industrial Processes 6 credits

MG2130 Modelling and Simulation of Industrial Processes 9 credits

• ***As well as one of the following courses must be chosen, either study year 4 or 5:***

MG2009 Advanced Manufacturing Technology 6 credits

MG2109 Advanced Manufacturing Technology, Extended Course 9 credits

MG2110 Advanced Metrology 9 credits

MG2022 Advanced CAD Modelling and Rapid Prototyping 6 credits *

MG2135 PLM - Product Lifecycle Management 9 credits

MG2036 Computer Aided Manufacturing - CAM 6 credits

MG2038 Digital Factories 6 credits **

MG2010 Modern Industrial Metrology 6 credits *

* **MG2028** prerequisites

** **MG2130** prerequisites

• **Technical profile Solid Mechanics**

SE1025 FEM for Engineering Applications 6 credits

One of the following two courses must be chosen:

SE2126 Material Mechanics 9 credits

SE2132 Applied Elasticity with FEM 9 credits

As well as one of the following courses must be chosen:

SE2860 FEM Modelling 8 credits

SE2137 Fatigue 6 credits

SE2139 Fracture Mechanics 6 credits

SE2134 Dynamic Problems in Solid Mechanics 7,5 credits

SE2121 Introduction to Biomechanics 9 credits

Information regarding conditionally elective courses

At least one of the conditionally elective courses must be chosen during study year 3.

Notice: You need **MG1024 Production** for eligibility to the course **MG2029 Production Engineering - Planning and Control**, which is a mandatory course for students attending the Master's Programme Industrial Management (TINEM), Technical profile: Production

Year 4

Conditionally elective courses

Code	Name	Credits	Edu. level
MF2010	Component Design <i>Technical profile - Construction</i>	6.0 hp	Second cycle

MF2011	Systems Engineering <i>Technical profile - Construction</i>	9.0 hp	Second cycle
MF2019	CAD 3D-modelling and Visualization <i>Technical profile - Construction</i>	6.0 hp	Second cycle
MF2024	Robust and Probabilistic Design <i>Technical profile - Construction</i>	6.0 hp	Second cycle
MF2101	Machine Design <i>Technical profile - Construction</i>	6.0 hp	Second cycle
MF2102	Machine Design Project Course <i>Technical profile - Construction</i>	6.0 hp	Second cycle
MG2009	Advanced Manufacturing Technology <i>Technical profile - Production</i>	6.0 hp	Second cycle
MG2010	Modern Industrial Metrology <i>Technical profile - Production</i>	6.0 hp	Second cycle
MG2022	Advanced CAD Modelling and Rapid Prototyping, Project Course <i>Technical profile - Production</i>	6.0 hp	Second cycle
MG2028	CAD and Other IT Tools in Industrial Processes <i>Technical profile - Production</i>	6.0 hp	Second cycle
MG2029	Production Engineering - Planning and Control <i>Technical profile - Production</i>	6.0 hp	Second cycle
MG2036	Computer Aided Manufacturing - CAM <i>Technical profile - Production</i>	6.0 hp	Second cycle
MG2038	Digital Factories <i>Technical profile - Production</i>	6.0 hp	Second cycle
MG2109	Advanced Manufacturing Technology, Extended Course <i>Technical profile - Production</i>	9.0 hp	Second cycle
MG2110	Advanced Metrology <i>Technical profile - Production</i>	9.0 hp	Second cycle
MG2130	Modelling and Simulation of Industrial Processes <i>Technical profile - Production</i>	9.0 hp	Second cycle
MG2135	PLM - Product Lifecycle Management <i>Technical profile - Production</i>	9.0 hp	Second cycle
MJ2380	Introduction to Energy Systems Analysis and Applications <i>Technical profile - Energy</i>	9.0 hp	Second cycle
MJ2411	Renewable Energy Technology <i>Technical profile - Energy</i>	6.0 hp	Second cycle
MJ2413	Energy and Environment <i>Technical profile - Energy</i>	6.0 hp	Second cycle
SE1025	FEM for Engineering Applications	6.0 hp	First cycle

	<i>Technical profile - Solid Mechanics</i>		
SE2121	Introduction to Biomechanics <i>Technical profile - Solid Mechanics</i>	9.0 hp	Second cycle
SE2126	Material Mechanics <i>Technical profile - Solid Mechanics</i>	9.0 hp	Second cycle
SE2132	Applied Elasticity with FEM <i>Technical profile - Solid Mechanics</i>	9.0 hp	Second cycle
SE2134	Dynamic Problems in Solid Mechanics <i>Technical profile - Solid Mechanics</i>	7.5 hp	Second cycle
SE2137	Fatigue <i>Technical profile - Solid Mechanics</i>	6.0 hp	Second cycle
SE2139	Fracture Mechanics <i>Technical profile - Solid Mechanics</i>	6.0 hp	Second cycle
SE2860	FEM Modelling <i>Technical profile - Solid Mechanics</i>	8.0 hp	Second cycle

Supplementary information

CMAST-students at Masters programme, Industrial Management (TINEM)

One of the following technical profile specified within the study year plan for Degree Programme in Mechanical Engineering, must be chosen during study year 4-5 (ie during study year 1-2 of the master's programme)

Technical profiles, study year 4-5

(study year 1-2 of the master's programme)

- **Technical profile Construction**

Conditionally elective courses within the technical profile, corresponding to **at least 18 credits**, shall be taken during study year 4-5.

- **Technical profile Energy**

All conditionally elective courses within the technical profile, shall be taken during study year 4-5.

- **Technical profile Production**

Within the technical profile, the course *MG2029 Production Engineering - Planning and Control* should be read, as well as **one** of the courses *MG2028 CAD and Other IT Tools in Industrial Processes* or *MG2130 Modelling and Simulation of Industrial Processes*.

In addition to these courses, **one** of the other conditionally elective courses within the technical profile, should be read in year 4-5.

- **Technical profile Solid Mechanics**

Within the technical profile, the course *SE1025 FEM for Engineering Applications* should be read, as well as **one** of the courses *SE2126 Material Mechanics* or *SE2132 Applied Elasticity*

with FEM.

In addition to these courses, **one** of the other conditionally elective courses within the technical profile, should be read in year 4-5.

International Profile, french (INTF)

Year 2

Mandatory courses (63.0 Credits)

Code	Name	Credits	Edu. level
LS1433	French A2 for Engineers	7.5 hp	First cycle
LS1434	French B1 for Engineers	7.5 hp	First cycle
MF1016	Basic Electrical Engineering	9.0 hp	First cycle
MF1044	Machine Components	6.0 hp	First cycle
MG1026	Manufacturing Technology	6.0 hp	First cycle
MJ1112	Applied Thermodynamics	9.0 hp	First cycle
SE1010	Solid Mechanics, Basic Course with Project	12.0 hp	First cycle
SG1140	Mechanics II	6.0 hp	First cycle

Conditionally elective courses

Code	Name	Credits	Edu. level
MG1028	Introductory 3D CAD <i>Mandatory for students admitted from COPEN</i>	1.5 hp	First cycle

Supplementary information

Information is based upon the curriculum for academic year 2019/2020. Changes may occur.

Year 3

Mandatory courses (24.0 Credits)

Code	Name	Credits	Edu. level
ME1003	Industrial Management, Basic Course	6.0 hp	First cycle
MF1045	Product realization - Engineering Design	6.0 hp	First cycle
MH1004	Engineering Materials	6.0 hp	First cycle
SF1633	Differential Equations I	6.0 hp	First cycle

Supplementary information

During study year 3, students at an international profile choose one of the specialisations included in the regular curriculum for the degree programme in Mechanical Engineering.

The course *SF1915 Probability Theory and Statistics*, should not be read by students attending the international profile. Instead the course *SF1633 Differential Equations* should be read.

The exchange semester is during year 3 fall or spring, depending on the exchange university.

A degree project for Degree of Bachelor must be chosen during study year 3, independently of chosen masters programme.

The Degree projects, first cycle, that can be selected are available as *conditional elective* courses under the heading "General" - "General courses".

Masters programs leading to the degree in Master of Science in Mechanical Engineering are specified in the program syllabus for batch Autumn 2018.

For more information about the qualifying courses, see respective directions.

International Profile, spanish (INTS)

Year 2

Mandatory courses (63.0 Credits)

Code	Name	Credits	Edu. level

LS1443	Spanish A2 for Engineers	7.5 hp	First cycle
LS1448	Spanish B1 for Engineers	7.5 hp	First cycle
MF1016	Basic Electrical Engineering	9.0 hp	First cycle
MF1044	Machine Components	6.0 hp	First cycle
MG1026	Manufacturing Technology	6.0 hp	First cycle
MJ1112	Applied Thermodynamics	9.0 hp	First cycle
SE1010	Solid Mechanics, Basic Course with Project	12.0 hp	First cycle
SG1140	Mechanics II	6.0 hp	First cycle

Conditionally elective courses

Code	Name	Credits	Edu. level
MG1028	Introductory 3D CAD <i>Mandatory for students admitted from COPEN</i>	1.5 hp	First cycle

Supplementary information

Information is based upon the curriculum for academic year 2019/2020. Changes may occur.

Year 3

Mandatory courses (24.0 Credits)

Code	Name	Credits	Edu. level
ME1003	Industrial Management, Basic Course	6.0 hp	First cycle
MF1045	Product realization - Engineering Design	6.0 hp	First cycle
MH1004	Engineering Materials	6.0 hp	First cycle
SF1633	Differential Equations I	6.0 hp	First cycle

Supplementary information

During study year 3, students at an international profile choose one of the specialisations included in the regular curriculum for the degree programme in Mechanical Engineering.

The course *SF1915 Probability Theory and Statistics*, should not be read by students attending the international profile. Instead the course *SF1633 Differential Equations* should be read.

The exchange semester is during year 3 fall or spring, depending on the exchange university.

A degree project for Degree of Bachelor must be chosen during study year 3, independently of chosen masters programme.

The Degree projects, first cycle, that can be selected are available as *conditional elective* courses under the heading "General" - "General courses".

Masters programs leading to the degree in Master of Science in Mechanical Engineering are specified in the program syllabus for batch Autumn 2018.

For more information about the qualifying courses, see respective directions.

International Profile, german (INTT)

Year 2

Mandatory courses (63.0 Credits)

Code	Name	Credits	Edu. level
LS1423	German A2 for Engineers	7.5 hp	First cycle
LS1424	German B1 for Engineers	7.5 hp	First cycle
MF1016	Basic Electrical Engineering	9.0 hp	First cycle
MF1044	Machine Components	6.0 hp	First cycle
MG1026	Manufacturing Technology	6.0 hp	First cycle
MJ1112	Applied Thermodynamics	9.0 hp	First cycle
SE1010	Solid Mechanics, Basic Course with Project	12.0 hp	First cycle
SG1140	Mechanics II	6.0 hp	First cycle

Conditionally elective courses

Code	Name	Credits	Edu. level
MG1028	Introductory 3D CAD <i>Mandatory for students admitted from COPEN</i>	1.5 hp	First cycle

Supplementary information

Information is based upon the curriculum for academic year 2019/2020. Changes may occur.

Year 3

Mandatory courses (24.0 Credits)

Code	Name	Credits	Edu. level
ME1003	Industrial Management, Basic Course	6.0 hp	First cycle
MF1045	Product realization - Engineering Design	6.0 hp	First cycle
MH1004	Engineering Materials	6.0 hp	First cycle
SF1633	Differential Equations I	6.0 hp	First cycle

Supplementary information

During study year 3, students at an international profile choose one of the specialisations included in the regular curriculum for the degree programme in Mechanical Engineering.

The course *SF1915 Probability Theory and Statistics*, should not be read by students attending the international profile. Instead the course *SF1633 Differential Equations* should be read.

The exchange semester is during year 3 fall or spring, depending on the exchange university.

A degree project for Degree of Bachelor must be chosen during study year 3, independently of chosen masters programme.

The Degree projects, first cycle, that can be selected are available as *conditional elective* courses under the heading "General" - "General courses".

Masters programs leading to the degree in Master of Science in Mechanical Engineering are specified in the program syllabus for batch Autumn 2018.

For more information about the qualifying courses, see respective directions.

Track, Innovation Management and Product Development (IPDE)

Year 3

Mandatory courses (18.0 Credits)

Code	Name	Credits	Edu. level
MF1045	Product realization - Engineering Design	6.0 hp	First cycle
MH1004	Engineering Materials	6.0 hp	First cycle
SF1915	Probability Theory and Statistics	6.0 hp	First cycle

Conditionally elective courses

Code	Name	Credits	Edu. level
DD1321	Applied Programming and Computer Science	9.0 hp	First cycle
EL1010	Automatic Control, General Course	6.0 hp	First cycle
ME2015	Project Management: Leadership and Control	6.0 hp	Second cycle
MG1002	Automation Technology	6.0 hp	First cycle
MG1024	Production	6.0 hp	First cycle
MH1023	Practical Gender Equality and Diversity Work in Scientific, Technical and Industrial Environments	6.0 hp	First cycle
MJ1401	Heat Transfer	6.0 hp	First cycle
SD1116	Design of Silent and Vibration-free Products	6.0 hp	First cycle
SE1025	FEM for Engineering Applications	6.0 hp	First cycle
SG1217	Fluid Mechanics, Basic Course <i>SG1220 can be chosen instead of SG1217.</i>	6.0 hp	First cycle
SG1220	Fluid Mechanics for Engineers <i>SG1217 can be chosen instead of SG1220.</i>	6.0 hp	First cycle

Supplementary information

A degree project for Degree of Bachelor must be chosen during study year 3, independently of chosen masters programme.

The Degree projects, first cycle, that can be selected are available as *conditional elective* courses under the heading "General" - "General courses".

Information regarding conditionally elective courses

At least two of the conditionally elective courses must be chosen during study year 3.

Track, Machine Design (IPUB)

Year 3

Mandatory courses (18.0 Credits)

Code	Name	Credits	Edu. level
MF1045	Product realization - Engineering Design	6.0 hp	First cycle
MH1004	Engineering Materials	6.0 hp	First cycle
SF1915	Probability Theory and Statistics	6.0 hp	First cycle

Conditionally elective courses

Code	Name	Credits	Edu. level
DD1321	Applied Programming and Computer Science	9.0 hp	First cycle
EL1010	Automatic Control, General Course	6.0 hp	First cycle
ME2015	Project Management: Leadership and Control	6.0 hp	Second cycle
MG1002	Automation Technology	6.0 hp	First cycle
MG1024	Production	6.0 hp	First cycle
MH1023	Practical Gender Equality and Diversity Work in Scientific, Technical and Industrial Environments	6.0 hp	First cycle
MJ1401	Heat Transfer	6.0 hp	First cycle
SD1116	Design of Silent and Vibration-free Products	6.0 hp	First cycle

SE1025	FEM for Engineering Applications	6.0 hp	First cycle
SG1217	Fluid Mechanics, Basic Course <i>SG1220 can be chosen instead of SG1217.</i>	6.0 hp	First cycle
SG1220	Fluid Mechanics for Engineers <i>SG1217 can be chosen instead of SG1220.</i>	6.0 hp	First cycle

Supplementary information

A degree project for Degree of Bachelor must be chosen during study year 3, independently of chosen masters programme.

The Degree projects, first cycle, that can be selected are available as *conditional elective* courses under the heading "General" - "General courses".

Information regarding conditionally elective courses

At least two of the conditionally elective courses must be chosen during study year 3.

Track, Mechatronics (IPUC)

Year 3

Mandatory courses (33.0 Credits)

Code	Name	Credits	Edu. level
DD1321	Applied Programming and Computer Science	9.0 hp	First cycle
EL1010	Automatic Control, General Course	6.0 hp	First cycle
MF1045	Product realization - Engineering Design	6.0 hp	First cycle
MH1004	Engineering Materials	6.0 hp	First cycle
SF1915	Probability Theory and Statistics	6.0 hp	First cycle

Recommended courses

Code	Name	Credits	Edu. level
ME2015	Project Management: Leadership and Control	6.0 hp	Second cycle
MG1002	Automation Technology	6.0 hp	First cycle

MG1024	Production	6.0 hp	First cycle
MH1023	Practical Gender Equality and Diversity Work in Scientific, Technical and Industrial Environments	6.0 hp	First cycle
MJ1401	Heat Transfer	6.0 hp	First cycle
SD1116	Design of Silent and Vibration-free Products	6.0 hp	First cycle
SE1025	FEM for Engineering Applications	6.0 hp	First cycle
SG1217	Fluid Mechanics, Basic Course <i>SG1220 can be chosen instead of SG1217.</i>	6.0 hp	First cycle
SG1220	Fluid Mechanics for Engineers <i>SG1217 can be chosen instead of SG1220.</i>	6.0 hp	First cycle

Supplementary information

A degree project for Degree of Bachelor must be chosen during study year 3, independently of chosen masters programme.

The Degree projects, first cycle, that can be selected are available as *conditional elective* courses under the heading "General" - "General courses".

Industrial Technology and Sustainability (ITSY)

Master, Naval Architecture (MRS)

Year 3

Mandatory courses (18.0 Credits)

Code	Name	Credits	Edu. level
MF1045	Product realization - Engineering Design	6.0 hp	First cycle
MH1004	Engineering Materials	6.0 hp	First cycle
SF1915	Probability Theory and Statistics	6.0 hp	First cycle

Conditionally elective courses

Code	Name	Credits	Edu. level
DD1321	Applied Programming and Computer Science	9.0 hp	First cycle

EL1010	Automatic Control, General Course	6.0 hp	First cycle
ME2015	Project Management: Leadership and Control	6.0 hp	Second cycle
MG1002	Automation Technology	6.0 hp	First cycle
MG1024	Production	6.0 hp	First cycle
MH1023	Practical Gender Equality and Diversity Work in Scientific, Technical and Industrial Environments	6.0 hp	First cycle
MJ1401	Heat Transfer	6.0 hp	First cycle
SD1116	Design of Silent and Vibration-free Products	6.0 hp	First cycle
SE1025	FEM for Engineering Applications	6.0 hp	First cycle
SG1217	Fluid Mechanics, Basic Course <i>One of the courses SG1220 or SG1217 must be chosen for eligibility to the Master's programme, Naval Architecture.</i>	6.0 hp	First cycle
SG1220	Fluid Mechanics for Engineers <i>One of the courses SG1220 or SG1217 must be chosen for eligibility to the Master's programme, Naval Architecture.</i>	6.0 hp	First cycle

Supplementary information

A degree project for Degree of Bachelor must be chosen during study year 3, independently of chosen masters programme.

The Degree projects, first cycle, that can be selected are available as *conditional elective* courses under the heading "General" - "General courses".

Information regarding conditionally elective courses

At least two of the conditionally elective courses must be chosen during study year 3, and **at least one of** the courses SG1217 or SG1220 must be chosen.

Master, Mathematics (MTH)

Year 3

Mandatory courses (24.0 Credits)

Code	Name	Credits	Edu. level
MF1045	Product realization - Engineering Design	6.0 hp	First cycle

MH1004	Engineering Materials	6.0 hp	First cycle
SF1632	Complementary Course in Differential Equations and Transforms	3.0 hp	First cycle
SF1904	Markov Processes, Basic Course	3.0 hp	First cycle
SF1915	Probability Theory and Statistics	6.0 hp	First cycle

Conditionally elective courses

Code	Name	Credits	Edu. level
DD1321	Applied Programming and Computer Science	9.0 hp	First cycle
EL1010	Automatic Control, General Course	6.0 hp	First cycle
ME2015	Project Management: Leadership and Control	6.0 hp	Second cycle
MG1002	Automation Technology	6.0 hp	First cycle
MG1024	Production	6.0 hp	First cycle
MH1023	Practical Gender Equality and Diversity Work in Scientific, Technical and Industrial Environments	6.0 hp	First cycle
MJ1401	Heat Transfer	6.0 hp	First cycle
SD1116	Design of Silent and Vibration-free Products	6.0 hp	First cycle
SE1025	FEM for Engineering Applications	6.0 hp	First cycle
SG1217	Fluid Mechanics, Basic Course <i>SG1220 can be chosen instead of SG1217.</i>	6.0 hp	First cycle
SG1220	Fluid Mechanics for Engineers <i>SG1217 can be chosen instead of SG1220.</i>	6.0 hp	First cycle

Supplementary information

A degree project for Degree of Bachelor must be chosen during study year 3, independently of chosen masters programme.

The Degree projects, first cycle, that can be selected are available as *conditional elective* courses under the heading "General" - "General courses".

CMAST-students at Masters programme, Applied and Computational Mathematics (TTMAM)

A technical profile specified within the study year plan for Degree Programme in Mechanical Engineering must be chosen

One of the following profiles can be chosen during study year 4-5:

- **Technical profile Production and Energy**

MG2130 Modelling and Simulation of Industrial Processes 9 credits

MJ2380 Introduction to Energy Systems Analysis and Applications 9 credits

- **Technical profile Solid Mechanics**

SE1025 FEM for Engineering Applications 6 credits

One of the following two courses must be chosen:

SE2126 Material Mechanics 9 credits

SE2132 Applied Elasticity with FEM 9 credits

As well as one of the following courses must be chosen:

SE2860 FEM Modelling 8 credits

SE2137 Fatigue 6 credits

SE2139 Fracture Mechanics 6 credits

SE2134 Dynamic Problems in Solid Mechanics 7,5 credits

SE2121 Introduction to Biomechanics 9 credits

- **Technical profile Construction**

Courses corresponding to at least 18 credits, listed below, shall be taken during study year 4-5:

MF2101 Machine Design 6 credits

MF2102 Machine Design Project 6 credits

MF2010 Component Design 6 credits

MF2011 Systems Engineering 9 credits

MF2019 CAD 3D-modelling and Visualization 6 credits *

MF2024 Robust and Probabilistic Design 6 credits

* ***will be able to study in period 2 and 4***

Information regarding conditionally elective courses

At least two of the conditionally elective courses must be chosen during study year 3.

Year 4

Conditionally elective courses

Code	Name	Credits	Edu. level
MF2010	Component Design <i>Technical profile - Construction</i>	6.0 hp	Second cycle
MF2011	Systems Engineering <i>Technical profile - Construction</i>	9.0 hp	Second cycle
MF2019	CAD 3D-modelling and Visualization <i>Technical profile - Construction</i>	6.0 hp	Second cycle
MF2024	Robust and Probabilistic Design	6.0 hp	Second cycle

	<i>Technical profile - Construction</i>		
MF2101	Machine Design <i>Technical profile - Construction</i>	6.0 hp	Second cycle
MF2102	Machine Design Project Course <i>Technical profile - Construction</i>	6.0 hp	Second cycle
MG2130	Modelling and Simulation of Industrial Processes <i>Technical profile - Production and energy</i>	9.0 hp	Second cycle
MJ2380	Introduction to Energy Systems Analysis and Applications <i>Technical profile - Production and energy</i>	9.0 hp	Second cycle
SE1025	FEM for Engineering Applications <i>Technical profile - Solid Mechanics</i>	6.0 hp	First cycle
SE2121	Introduction to Biomechanics <i>Technical profile - Solid Mechanics</i>	9.0 hp	Second cycle
SE2126	Material Mechanics <i>Technical profile - Solid Mechanics</i>	9.0 hp	Second cycle
SE2132	Applied Elasticity with FEM <i>Technical profile - Solid Mechanics</i>	9.0 hp	Second cycle
SE2134	Dynamic Problems in Solid Mechanics <i>Technical profile - Solid Mechanics</i>	7.5 hp	Second cycle
SE2137	Fatigue <i>Technical profile - Solid Mechanics</i>	6.0 hp	Second cycle
SE2139	Fracture Mechanics <i>Technical profile - Solid Mechanics</i>	6.0 hp	Second cycle
SE2860	FEM Modelling <i>Technical profile - Solid Mechanics</i>	8.0 hp	Second cycle

Supplementary information

CMASST-students at Masters programme, *Applied and Computational Mathematics (TTMAM)*

One of the following technical profile specified within the study year plan for Degree Programme in Mechanical Engineering, must be chosen during study year 4-5 (ie during study year 1-2 of the master's programme)

Technical profiles, study year 4-5

(study year 1-2 of the master's programme)

- **Technical profile Construction**

Conditionally elective courses within the technical profile, corresponding to **at least 18 credits**, shall be taken during study year 4-5.

- **Technical profile Production and Energy**

All conditionally elective courses within the technical profile, shall be taken during study year 4-5.

- **Technical profile Solid Mechanics**

Within the technical profile, the course *SE1025 FEM for Engineering Applications* should be read, as well as **one** of the courses *SE2126 Material Mechanics* or *SE2132 Applied Elasticity with FEM*.

In addition to these courses, **one** of the other conditionally elective courses within the technical profile, should be read in year 4-5.

Master, Nuclear Energy Engineering (NEE)

Year 3

Mandatory courses (26.0 Credits)

Code	Name	Credits	Edu. level
MF1045	Product realization - Engineering Design	6.0 hp	First cycle
MH1004	Engineering Materials	6.0 hp	First cycle
SF1915	Probability Theory and Statistics	6.0 hp	First cycle
SH1012	Modern Physics	8.0 hp	First cycle

Conditionally elective courses

Code	Name	Credits	Edu. level
DD1321	Applied Programming and Computer Science	9.0 hp	First cycle
EL1010	Automatic Control, General Course	6.0 hp	First cycle
ME2015	Project Management: Leadership and Control	6.0 hp	Second cycle
MG1002	Automation Technology	6.0 hp	First cycle
MG1024	Production	6.0 hp	First cycle
MH1023	Practical Gender Equality and Diversity Work in Scientific, Technical and Industrial Environments	6.0 hp	First cycle
MJ1401	Heat Transfer	6.0 hp	First cycle
SD1116	Design of Silent and Vibration-free Products	6.0 hp	First cycle

SE1025	FEM for Engineering Applications	6.0 hp	First cycle
SG1217	Fluid Mechanics, Basic Course <i>SG1220 can be chosen instead of SG1217.</i>	6.0 hp	First cycle
SG1220	Fluid Mechanics for Engineers <i>SG1217 can be chosen instead of SG1220.</i>	6.0 hp	First cycle

Supplementary information

A degree project for Degree of Bachelor must be chosen during study year 3, independently of chosen masters programme.

The Degree projects, first cycle, that can be selected are available as *conditional elective* courses under the heading "General" - "General courses".

Information regarding conditionally elective courses

At least two of the conditionally elective courses must be chosen during study year 3, and **at least one of** the courses SG1217 or SG1220 must be chosen.

Master, Production Engineering and Management (PRM)

Year 3

Mandatory courses (30.0 Credits)

Code	Name	Credits	Edu. level
MF1045	Product realization - Engineering Design	6.0 hp	First cycle
MG1002	Automation Technology	6.0 hp	First cycle
MG1024	Production	6.0 hp	First cycle
MH1004	Engineering Materials	6.0 hp	First cycle
SF1915	Probability Theory and Statistics	6.0 hp	First cycle

Recommended courses

Code	Name	Credits	Edu. level

DD1321	Applied Programming and Computer Science	9.0 hp	First cycle
EL1010	Automatic Control, General Course	6.0 hp	First cycle
ME2015	Project Management: Leadership and Control	6.0 hp	Second cycle
MH1023	Practical Gender Equality and Diversity Work in Scientific, Technical and Industrial Environments	6.0 hp	First cycle
MJ1401	Heat Transfer	6.0 hp	First cycle
SD1116	Design of Silent and Vibration-free Products	6.0 hp	First cycle
SE1025	FEM for Engineering Applications	6.0 hp	First cycle
SG1217	Fluid Mechanics, Basic Course <i>SG1220 can be chosen instead of SG1217.</i>	6.0 hp	First cycle
SG1220	Fluid Mechanics for Engineers <i>SG1217 can be chosen instead of SG1220.</i>	6.0 hp	First cycle

Supplementary information

A degree project for Degree of Bachelor must be chosen during study year 3, independently of chosen masters programme.

The Degree projects, first cycle, that can be selected are available as *conditional elective* courses under the heading "General" - "General courses".

Master, Sustainable Energy Engineering (SUE)

Year 3

Mandatory courses (24.0 Credits)

Code	Name	Credits	Edu. level
MF1045	Product realization - Engineering Design	6.0 hp	First cycle
MH1004	Engineering Materials	6.0 hp	First cycle
MJ1401	Heat Transfer	6.0 hp	First cycle
SF1915	Probability Theory and Statistics	6.0 hp	First cycle

Conditionally elective courses

Code	Name	Credits	Edu. level
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SG1217	Fluid Mechanics, Basic Course <i>One of the courses SG1217 or SG1220 must be chosen.</i>	6.0 hp	First cycle
SG1220	Fluid Mechanics for Engineers <i>One of the courses SG1220 or SG1217 must be chosen.</i>	6.0 hp	First cycle

Recommended courses

Code	Name	Credits	Edu. level
DD1321	Applied Programming and Computer Science	9.0 hp	First cycle
EL1010	Automatic Control, General Course	6.0 hp	First cycle
ME2015	Project Management: Leadership and Control	6.0 hp	Second cycle
MG1002	Automation Technology	6.0 hp	First cycle
MG1024	Production	6.0 hp	First cycle
MH1023	Practical Gender Equality and Diversity Work in Scientific, Technical and Industrial Environments	6.0 hp	First cycle
SD1116	Design of Silent and Vibration-free Products	6.0 hp	First cycle
SE1025	FEM for Engineering Applications	6.0 hp	First cycle

Supplementary information

A degree project for Degree of Bachelor must be chosen during study year 3, independently of chosen masters programme.

The Degree projects, first cycle, that can be selected are available as *conditional elective* courses under the heading "General" - "General courses".

Information regarding conditionally elective courses

One of the conditionally elective courses SG1217 or SG1220 must be chosen during study year 3.

Master, Sustainable Technology (SUT)

Year 3

Mandatory courses (24.0 Credits)

Code	Name	Credits	Edu. level

AL2113	Sustainable Development in theory and practise	6.0 hp	Second cycle
MF1045	Product realization - Engineering Design	6.0 hp	First cycle
MH1004	Engineering Materials	6.0 hp	First cycle
SF1915	Probability Theory and Statistics	6.0 hp	First cycle

Conditionally elective courses

Code	Name	Credits	Edu. level
DD1321	Applied Programming and Computer Science	9.0 hp	First cycle
EL1010	Automatic Control, General Course	6.0 hp	First cycle
ME2015	Project Management: Leadership and Control	6.0 hp	Second cycle
MG1002	Automation Technology	6.0 hp	First cycle
MG1024	Production	6.0 hp	First cycle
MH1023	Practical Gender Equality and Diversity Work in Scientific, Technical and Industrial Environments	6.0 hp	First cycle
MJ1401	Heat Transfer	6.0 hp	First cycle
SD1116	Design of Silent and Vibration-free Products	6.0 hp	First cycle
SE1025	FEM for Engineering Applications	6.0 hp	First cycle
SG1217	Fluid Mechanics, Basic Course <i>SG1220 can be chosen instead of SG1217.</i>	6.0 hp	First cycle
SG1220	Fluid Mechanics for Engineers <i>SG1217 can be chosen instead of SG1220.</i>	6.0 hp	First cycle

Supplementary information

A degree project for Degree of Bachelor must be chosen during study year 3, independently of chosen masters programme.

The Degree projects, first cycle, that can be selected are available as *conditional elective* courses under the heading "General" - "General courses".

CMAST-students at Masters programme, Sustainable Technology (TSUTM)

A technical profile specified within the study year plan for Degree Programme in Mechanical Engineering must be chosen

One of the following profiles can be chosen during study year 4-5:

- **Technical profile Construction**

Courses corresponding to at least 18 credits, listed below, shall be taken during study year 4-5:

MF2101 Machine Design 6 credits

MF2102 Machine Design Project 6 credits
MF2010 Component Design 6 credits
MF2011 Systems Engineering 9 credits
MF2019 CAD 3D-modelling and Visualization 6 credits *
MF2024 Robust and Probabilistic Design 6 credits
** will be able to study in period 2 and 4*

- **Technical profile Energy**

MJ2413 Energy and Environment 6 credits
MJ2411 Renewable Energy Technology 6 credits *
MJ2380 Introduction to Energy Systems Analysis and Applications 9 credits
**can also be chosen study year 5*

- **Technical profile Production**

MG2029 Production Engineering - Planning and Control 6 credits
(MG1024 Production in study year 3, is the eligibility course for MG2029)

One of the following two courses must be chosen:

MG2028 CAD and Other IT Tools in Industrial Processes 6 credits
MG2130 Modelling and Simulation of Industrial Processes 9 credits

As well as one of the following courses must be chosen, either study year 4 or 5:

MG2009 Advanced Manufacturing Technology 6 credits
MG2109 Advanced Manufacturing Technology, Extended Course 9 credits
MG2110 Advanced Metrology 9 credits
MG2022 Advanced CAD Modelling and Rapid Prototyping 6 credits *
MG2135 PLM - Product Lifecycle Management 9 credits
MG2036 Computer Aided Manufacturing - CAM 6 credits
MG2038 Digital Factories 6 credits **
MG2010 Modern Industrial Metrology 6 credits *

** MG2028 prerequisites*

*** MG2130 prerequisites*

- **Technical profile Solid Mechanics**

SE1025 FEM for Engineering Applications 6 credits

One of the following two courses must be chosen:

SE2126 Material Mechanics 9 credits
SE2132 Applied Elasticity with FEM 9 credits

As well as one of the following courses must be chosen:

SE2860 FEM Modelling 8 credits
SE2137 Fatigue 6 credits
SE2139 Fracture Mechanics 6 credits
SE2134 Dynamic Problems in Solid Mechanics 7,5 credits
SE2121 Introduction to Biomechanics 9 credits

Information regarding conditionally elective courses

At least two of the conditionally elective courses must be chosen during study year 3.

Year 4

Conditionally elective courses

Code	Name	Credits	Edu. level
MF2010	Component Design <i>Technical profile - Construction</i>	6.0 hp	Second cycle
MF2011	Systems Engineering <i>Technical profile - Construction</i>	9.0 hp	Second cycle
MF2019	CAD 3D-modelling and Visualization <i>Technical profile - Construction</i>	6.0 hp	Second cycle
MF2024	Robust and Probabilistic Design <i>Technical profile - Construction</i>	6.0 hp	Second cycle
MF2101	Machine Design <i>Technical profile - Construction</i>	6.0 hp	Second cycle
MF2102	Machine Design Project Course <i>Technical profile - Construction</i>	6.0 hp	Second cycle
MG2009	Advanced Manufacturing Technology <i>Technical profile - Production</i>	6.0 hp	Second cycle
MG2010	Modern Industrial Metrology <i>Technical profile - Production</i>	6.0 hp	Second cycle
MG2022	Advanced CAD Modelling and Rapid Prototyping, Project Course <i>Technical profile - Production</i>	6.0 hp	Second cycle
MG2028	CAD and Other IT Tools in Industrial Processes <i>Technical profile - Production</i>	6.0 hp	Second cycle
MG2029	Production Engineering - Planning and Control <i>Technical profile - Production</i>	6.0 hp	Second cycle
MG2036	Computer Aided Manufacturing - CAM <i>Technical profile - Production</i>	6.0 hp	Second cycle
MG2038	Digital Factories <i>Technical profile - Production</i>	6.0 hp	Second cycle
MG2109	Advanced Manufacturing Technology, Extended Course <i>Technical profile - Production</i>	9.0 hp	Second cycle

MG2110	Advanced Metrology <i>Technical profile - Production</i>	9.0 hp	Second cycle
MG2130	Modelling and Simulation of Industrial Processes <i>Technical profile - Production</i>	9.0 hp	Second cycle
MG2135	PLM - Product Lifecycle Management <i>Technical profile - Production</i>	9.0 hp	Second cycle
MJ2380	Introduction to Energy Systems Analysis and Applications <i>Technical profile - Energy</i>	9.0 hp	Second cycle
MJ2411	Renewable Energy Technology <i>Technical profile - Energy</i>	6.0 hp	Second cycle
MJ2413	Energy and Environment <i>Technical profile - Energy</i>	6.0 hp	Second cycle
SE1025	FEM for Engineering Applications <i>Technical profile - Solid Mechanics</i>	6.0 hp	First cycle
SE2121	Introduction to Biomechanics <i>Technical profile - Solid Mechanics</i>	9.0 hp	Second cycle
SE2126	Material Mechanics <i>Technical profile - Solid Mechanics</i>	9.0 hp	Second cycle
SE2132	Applied Elasticity with FEM <i>Technical profile - Solid Mechanics</i>	9.0 hp	Second cycle
SE2134	Dynamic Problems in Solid Mechanics <i>Technical profile - Solid Mechanics</i>	7.5 hp	Second cycle
SE2137	Fatigue <i>Technical profile - Solid Mechanics</i>	6.0 hp	Second cycle
SE2139	Fracture Mechanics <i>Technical profile - Solid Mechanics</i>	6.0 hp	Second cycle
SE2860	FEM Modelling <i>Technical profile - Solid Mechanics</i>	8.0 hp	Second cycle

Supplementary information

CMAST-students at Masters programme, *Sustainable Technology* (TSUTM)

One of the following technical profile specified within the study year plan for Degree Programme in Mechanical Engineering, must be chosen during study year 4-5 (ie during study year 1-2 of the master's programme)

Technical profiles, study year 4-5

(study year 1-2 of the master's programme)

- **Technical profile Construction**

Conditionally elective courses within the technical profile, corresponding to **at least 18 credits**, shall be taken during study year 4-5.

- **Technical profile Energy**

All conditionally elective courses within the technical profile, shall be taken during study year 4-5.

- **Technical profile Production**

Within the technical profile, the course *MG2029 Production Engineering - Planning and Control* should be read, as well as **one** of the courses *MG2028 CAD and Other IT Tools in Industrial Processes* or *MG2130 Modelling and Simulation of Industrial Processes*.

In addition to these courses, **one** of the other conditionally elective courses within the technical profile, should be read in year 4-5.

- **Technical profile Solid Mechanics**

Within the technical profile, the course *SE1025 FEM for Engineering Applications* should be read, as well as **one** of the courses *SE2126 Material Mechanics* or *SE2132 Applied Elasticity with FEM*.

In addition to these courses, **one** of the other conditionally elective courses within the technical profile, should be read in year 4-5.

Track, Fluid Mechanics (TEMA)

Year 3

Mandatory courses (18.0 Credits)

Code	Name	Credits	Edu. level
MF1045	Product realization - Engineering Design	6.0 hp	First cycle
MH1004	Engineering Materials	6.0 hp	First cycle
SF1915	Probability Theory and Statistics	6.0 hp	First cycle

Conditionally elective courses

Code	Name	Credits	Edu. level
DD1321	Applied Programming and Computer Science	9.0 hp	First cycle
EL1010	Automatic Control, General Course	6.0 hp	First cycle

ME2015	Project Management: Leadership and Control	6.0 hp	Second cycle
MG1002	Automation Technology	6.0 hp	First cycle
MG1024	Production	6.0 hp	First cycle
MH1023	Practical Gender Equality and Diversity Work in Scientific, Technical and Industrial Environments	6.0 hp	First cycle
MJ1401	Heat Transfer	6.0 hp	First cycle
SD1116	Design of Silent and Vibration-free Products	6.0 hp	First cycle
SE1025	FEM for Engineering Applications	6.0 hp	First cycle
SG1217	Fluid Mechanics, Basic Course <i>One of the courses SG1220 or SG1217 must be chosen.</i>	6.0 hp	First cycle
SG1220	Fluid Mechanics for Engineers <i>One of the courses SG1220 or SG1217 must be chosen.</i>	6.0 hp	First cycle

Supplementary information

A degree project for Degree of Bachelor must be chosen during study year 3, independently of chosen masters programme.

The Degree projects, first cycle, that can be selected are available as *conditional elective* courses under the heading "General" - "General courses".

Information regarding conditionally elective courses

At least two of the conditionally elective courses must be chosen during study year 3, and **at least one of** the courses SG1217 or SG1220 must be chosen.

Track, Solid Mechanics (TEMB)

Year 3

Mandatory courses (18.0 Credits)

Code	Name	Credits	Edu. level
MF1045	Product realization - Engineering Design	6.0 hp	First cycle
MH1004	Engineering Materials	6.0 hp	First cycle
SF1915	Probability Theory and Statistics	6.0 hp	First cycle

Conditionally elective courses

Code	Name	Credits	Edu. level
DD1321	Applied Programming and Computer Science	9.0 hp	First cycle
EL1010	Automatic Control, General Course	6.0 hp	First cycle
ME2015	Project Management: Leadership and Control	6.0 hp	Second cycle
MG1002	Automation Technology	6.0 hp	First cycle
MG1024	Production	6.0 hp	First cycle
MH1023	Practical Gender Equality and Diversity Work in Scientific, Technical and Industrial Environments	6.0 hp	First cycle
MJ1401	Heat Transfer	6.0 hp	First cycle
SD1116	Design of Silent and Vibration-free Products	6.0 hp	First cycle
SE1025	FEM for Engineering Applications	6.0 hp	First cycle
SG1217	Fluid Mechanics, Basic Course <i>SG1220 can be chosen instead of SG1217.</i>	6.0 hp	First cycle
SG1220	Fluid Mechanics for Engineers <i>SG1217 can be chosen instead of SG1220.</i>	6.0 hp	First cycle

Supplementary information

A degree project for Degree of Bachelor must be chosen during study year 3, independently of chosen masters programme.

The Degree projects, first cycle, that can be selected are available as *conditional elective* courses under the heading "General" - "General courses".

Information regarding conditionally elective courses

At least two of the conditionally elective courses must be chosen during study year 3.

Track, Sound and Vibrations (TEMC)

Year 3

Mandatory courses (24.0 Credits)

Code	Name	Credits	Edu. level
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MF1045	Product realization - Engineering Design	6.0 hp	First cycle
MH1004	Engineering Materials	6.0 hp	First cycle
SD1116	Design of Silent and Vibration-free Products	6.0 hp	First cycle
SF1915	Probability Theory and Statistics	6.0 hp	First cycle

Conditionally elective courses

Code	Name	Credits	Edu. level
DD1321	Applied Programming and Computer Science	9.0 hp	First cycle
EL1010	Automatic Control, General Course	6.0 hp	First cycle
ME2015	Project Management: Leadership and Control	6.0 hp	Second cycle
MG1002	Automation Technology	6.0 hp	First cycle
MG1024	Production	6.0 hp	First cycle
MH1023	Practical Gender Equality and Diversity Work in Scientific, Technical and Industrial Environments	6.0 hp	First cycle
MJ1401	Heat Transfer	6.0 hp	First cycle
SE1025	FEM for Engineering Applications	6.0 hp	First cycle
SG1217	Fluid Mechanics, Basic Course <i>SG1220 can be chosen instead of SG1217.</i>	6.0 hp	First cycle
SG1220	Fluid Mechanics for Engineers <i>SG1217 can be chosen instead of SG1220.</i>	6.0 hp	First cycle

Supplementary information

A degree project for Degree of Bachelor must be chosen during study year 3, independently of chosen masters programme.

The Degree projects, first cycle, that can be selected are available as conditional elective courses under the heading "General" - "General courses".

Information regarding conditionally elective courses

At least one of the conditionally elective courses must be chosen during study year 3.



Appendix 2: Specialisations

Degree Programme in Mechanical Engineering
(CMAST)

Master, Aerospace Engineering (AEE)

No information entered.

Master, Vehicle Engineering (FOR)

No information entered.

Master, Industrial Management (INE)

No information entered.

International Profile, french (INTF)

No information entered.

International Profile, spanish (INTS)

No information entered.

International Profile, german (INTT)

No information entered.

Track, Innovation Management and Product Development (IPDE)

No information entered.

Track, Machine Design (IPUB)

No information entered.

Track, Mechatronics (IPUC)

No information entered.

Industrial Technology and Sustainability (ITSY)

Industrial technology and sustainability is run in a unique and close collaboration with modern industry. The education focuses on the manufacturing phase. You will learn how to analyze systems and processes in order to coordinate, integrate and optimizing flows in production. Operations management, logistics and maintenance are central for the system whole. After completed education, you may work in system development, developing and designing sustainable systems for manufacturing of any type of products i.e. vehicles, pharmaceuticals, food, clothes or green technology.

Master, Naval Architecture (MRS)

No information entered.

Master, Mathematics (MTH)

No information entered.

Master, Nuclear Energy Engineering (NEE)

No information entered.

Master, Production Engineering and Management (PRM)

No information entered.

Master, Sustainable Energy Engineering (SUE)

No information entered.

Master, Sustainable Technology (SUT)

No information entered.

Track, Fluid Mechanics (TEMA)

No information entered.

Track, Solid Mechanics (TEMB)

No information entered.

Track, Sound and Vibrations (TEMC)

No information entered.