



Programme syllabus

Degree Programme in Mechanical Engineering Civilingenjörsutbildning i maskinteknik *300.0 credits*

Valid for students admitted to the education from autumn 19 (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.

The KTH local Degree Ordinance can be found in the KTH regulatory framework www.kth.se

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 with subsequent exchange studies in year 3 at one of the European universities involved in the cooperation.

The academic year 2019/2020 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 guaranteed admission 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.

** Information about Master's programmes that lead to a Degree of Master of Science in Engineering, are found under the heading "Extent and content of the programme".*

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.

Choosing an international profile

During the spring term in year 1, choices are made for an international profile, ie of the languages French, Spanish or German

Special admission requirements for international profile

For studies in year 2

- 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

- 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.
- fulfill any requirements of the host university and be formally accepted as an exchange student there.

Choice of Master's programme

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

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 2019-01-01 (Dnr. V-2018-0961)

"In order to be eligible for advanced level studies within the integrated Master of Science programmes at KTH, you are required to complete 165 credits from year one through three. Of these, 110 credits must be from the year 1 and 2 curriculum. In addition to these credits, a Degree Project, first cycle needs to be completed before Master's level studies commence. Additional special admission requirements exist and appear in the respective programme curriculum "

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

Within the degree programme a degree project, second cycle, which comprises 30 credits, is included. The degree project course forms the final part of the degree programme in mechanical engineering. The degree project course can be commenced when the special admission requirements listed in the course syllabus are met.

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

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.

[Appendix 1 - Course list](#)

[Appendix 2 - Programme syllabus descriptions](#)



Appendix 1: Course list

Degree Programme in Mechanical Engineering (CMAST), Programme syllabus for studies starting in autumn 2019

General courses

Year 1

Mandatory courses (60.0 Credits)

Course code	Course name	Credits	Edu. level
DD1310	Programming Techniques	6.0 hp	First cycle
MF1001	Mechanical Engineering, introductory course	9.0 hp	First cycle
MJ1104	Practical Introduction to Energy Technology	6.0 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
SK1110	Electromagnetism and Waves	7.5 hp	First cycle

Year 2

Mandatory courses (60.0 Credits)

Course code	Course name	Credits	Edu. level
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
SF1514	Numerical Methods, Basic Course	6.0 hp	First cycle
SF1633	Differential Equations I	6.0 hp	First cycle
SG1140	Mechanics II	6.0 hp	First cycle

Conditionally elective courses

Course code	Course name	Credits	Edu. level
MG1028	Introductory 3D CAD Mandatory for students admitted from COPEN	1.5 hp	First cycle

Supplementary information

Information regarding conditionally elective courses

The course MG1028 is mandatory for students admitted to CMAST from Degree Programme Open Entrance (COPEN)

Year 3

Mandatory courses (24.0 Credits)

Course code	Course 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
SF1915	Probability Theory and Statistics	6.0 hp	First cycle

Conditionally elective courses

Course code	Course 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

Information is based upon the curriculum for academic year 2020/2021. Changes may occur.

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

- Aerospace Engineering
- Vehicle Engineering
- Industrial Management
- Integrated Product Design
Track, Innovation Management and Product Development
- Engineering Design
Track, Combustion Engineering
Track, Machine Design
Track, Mechatronics
- Naval Architecture
- Applied and Computational Mathematics
- Nuclear Energy Engineering
- Production Engineering Management
Recommended profiles: Industrial IT-systems, Industrial welding, Production engineering and management and Production development
- Sustainable Energy Engineering
- Sustainable Technology
- Engineering Mechanics
Track, Fluid Mechanics
Track, Solid Mechanics
Track, Sound and Vibrations

Some Masterprograms require specific courses during year 3.

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

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

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

- Aerospace Engineering
- Vehicle Engineering
- Sustainable Energy Engineering
- Industrial Management (*Technical Profile: Engineering Design, Energy, Production or Solid Mechanics*)
- Integrated Product Design
Track, Innovation Management and Product Development
- Production Engineering Management

- Engineering Design
Track, Combustion Engineering
Track, Machine Design
Track, Mechatronics
- Nuclear Energy Engineering
- Applied and Computational Mathematics (*Technical Profile: Production and Energy or Solid Mechanics*)
- Naval Architecture
- Sustainable Technology (*Technical Profile: Engineering Design, Energy, Production or Solid Mechanics*)
- Engineering Mechanics
Track, Fluid Mechanics
Track, Solid Mechanics
Track, Sound and Vibrations

Some Masterprograms require specific courses during year 3.

Master, Aerospace Engineering (AEE)

Year 3

Mandatory courses (24.0 Credits)

Course code	Course 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
ML1018	Fundamental Industrial Statistics SF1915 can be chosen instead of ML1018.	6.0 hp	First cycle

Conditionally elective courses

Course code	Course name	Credits	Edu. level
SG1217	Fluid Mechanics, Basic Course One of the courses SG1217 or SG1220 must be chosen.	6.0 hp	First cycle
SG1220	Fluid Mechanics for Engineers One of the courses SG1220 or SG1217 must be chosen.	6.0 hp	First cycle

Recommended courses

Course code	Course name	Credits	Edu. level
	Applied Computer Science		

DD1320	DD1321 can be chosen instead of DD1320 depending on previous knowledge (see course syllabus)	6.0 hp	First cycle
	Applied Programming and Computer Science		
DD1321	DD1320 can be chosen instead of DD1321 depending on previous knowledge (see course syllabus)	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
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
SF1915	Probability Theory and Statistics	6.0 hp	First cycle
	ML1018 can be chosen instead of SF1915.		

Supplementary information

Information is based upon the curriculum for academic year 2018/2019. Changes may occur.

One of the conditionally elective courses SG1217 or SG1220 must be chosen.

One of the following degree project for a Degree of Bachelor must be chosen, independently of chosen masters programme:

- SA118X
- MF131X
- MF133X
- MF123X
- MG110X
- MJ146X

Master, Vehicle Engineering (FOR)

Year 3

Mandatory courses (24.0 Credits)

Course code	Course 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

Course code	Course 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
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 SG1220 can be chosen instead of SG1217.	6.0 hp	First cycle
SG1220	Fluid Mechanics for Engineers SG1217 can be chosen instead of SG1220.	6.0 hp	First cycle

Supplementary information

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

At least one of the conditionally elective courses must be chosen.

A degree project for Degree of Bachelor must be chosen during study year 3, independently of chosen masters programme (see list of conditional elective courses presented under the heading "General courses").

Master, Industrial Management (INE)

Year 3

Mandatory courses (30.0 Credits)

Course code	Course name	Credits	Edu. level
ME2015	Project Management: Leadership and Control	6.0 hp	Second cycle
ME2063	Team Leadership and Human Resource Management	6.0 hp	Second cycle
MF1045	Product realization - Engineering Design	6.0 hp	First cycle
MH1004	Engineering Materials	6.0 hp	First cycle
ML1018	Fundamental Industrial Statistics SF1915 can be chosen instead of ML1018.	6.0 hp	First cycle

Conditionally elective courses

Course code	Course name	Credits	Edu. level
	Applied Computer Science		

DD1320	DD1321 can be chosen instead of DD1320 depending on previous knowledge (see course syllabus) Applied Programming and Computer Science	6.0 hp	First cycle
DD1321	DD1320 can be chosen instead of DD1321 depending on previous knowledge (see course syllabus)	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
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 SG1220 can be chosen instead of SG1217.	6.0 hp	First cycle
SG1220	Fluid Mechanics for Engineers SG1217 can be chosen instead of SG1220.	6.0 hp	First cycle

Recommended courses

Course code	Course name	Credits	Edu. level
SF1915	Probability Theory and Statistics ML1018 can be chosen instead of SF1915.	6.0 hp	First cycle

Supplementary information

Information is based upon the curriculum for academic year 2020/2021. Changes may occur.

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:

- **Technical profile Construction**
MF2024 Robust and Probabilistic Design
MF2031 Advanced Prototyping*
**also possible to study in period 1 or period 2*

One of the following two courses must be chosen:

MF2010 Component Design
MF2011 Systems Engineering

- **Technical profile Energy**
MJ2413 Energy and Environment

MJ2411 Renewable Energy Technology*
MJ2380 Introduction to Energy Systems Analysis and Applications
**can also be chosen study year 5*

- **Technical profile Production**

MG2029 Production Engineering - Planning and Control

Notice! MG1024 Production must be chosen study year 3 to fulfil the requirements for MG2029

One of the following two courses must be chosen:

MG2028 CAD and Other IT Tools in Industrial Processes

MG2130 Modelling and Simulation of Industrial Processes

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

MG2009 Advanced Manufacturing Technology

MG2109 Advanced Manufacturing Technology, Extended Course

MG2110 Advanced Metrology

MG2022 Advanced CAD Modelling and Rapid Prototyping*

MG2135 PLM - Product Lifecycle Management

MG2036 Computer Aided Manufacturing - CAM

MG2038 Digital Factories**

MG2010 Modern Industrial Metrology*

**MG2028 prerequisites*

***MG2130 prerequisites*

- **Technical profile Solid Mechanics**

SE1025 FEM for Engineering Applications

One of the following two courses must be chosen:

SE2126 Material Mechanics

SE2132 Applied Elasticity with FEM

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

SE2860 FEM Modelling

SE2129 Fracture Mechanics and Fatigue

SE2134 Dynamic Problems in Solid Mechanics

SE2121 Introduction to Biomechanics

Information regarding conditionally elective courses

At least one of the conditionally elective courses must be chosen.

Year 4

Supplementary information

Information is based upon the curriculum for academic year 2018/2019. Changes may occur.

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

International Profile, french (INTF)

Year 2

Mandatory courses (60.0 Credits)

Course code	Course 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
SE1010	Solid Mechanics, Basic Course with Project	12.0 hp	First cycle
SF1514	Numerical Methods, Basic Course	6.0 hp	First cycle
SF1633	Differential Equations I	6.0 hp	First cycle
SG1140	Mechanics II	6.0 hp	First cycle

Conditionally elective courses

Course code	Course name	Credits	Edu. level
MG1028	Introductory 3D CAD Mandatory for students admitted from COPEN	1.5 hp	First cycle

Supplementary information

Information regarding conditionally elective courses

The course MG1028 is mandatory for students admitted to CMAST from Degree Programme Open Entrance (COPEN)

Year 3

Mandatory courses (27.0 Credits)

Course code	Course name	Credits	Edu. level
ME1003	Industrial Management, Basic Course	6.0 hp	First cycle
MF1045	Product realization - Engineering Design	6.0 hp	First cycle
MG1026	Manufacturing Technology	6.0 hp	First cycle

Supplementary information

Information is based upon the curriculum for academic year 2020/2021. Changes may occur.

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 courses *SF1915 Probability Theory and Statistics* and *MH1004 Engineering Materials*, should not be read by students attending the international profile. However, the following courses should be included study year 3, *MG1026 Manufacturing Technology* and *MJ1112 Applied Thermodynamics*

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.

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

- Aerospace Engineering
- Vehicle Engineering
- Industrial Management
- Integrated Product Design
Track, Innovation Management and Product Development
- Engineering Design
Track, Combustion Engineering
Track, Machine Design
Track, Mechatronics
- Naval Architecture
- Applied and Computational Mathematics
- Nuclear Energy Engineering
- Production Engineering Management
Recommended profiles: Industrial IT-systems, Industrial welding, Production engineering and management and Production development
- Sustainable Energy Engineering
- Sustainable Technology
- Engineering Mechanics
Track, Fluid Mechanics
Track, Solid Mechanics
Track, Sound and Vibrations

Some Masterprograms require specific courses during study year 3.

International Profile, spanish (INTS)

Year 2

Mandatory courses (60.0 Credits)

Course code	Course 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
SE1010	Solid Mechanics, Basic Course with Project	12.0 hp	First cycle
SF1514	Numerical Methods, Basic Course	6.0 hp	First cycle
SF1633	Differential Equations I	6.0 hp	First cycle
SG1140	Mechanics II	6.0 hp	First cycle

Conditionally elective courses

Course code	Course name	Credits	Edu. level
MG1028	Introductory 3D CAD Mandatory for students admitted from COPEN	1.5 hp	First cycle

Supplementary information

Information regarding conditionally elective courses

The course MG1028 is mandatory for students admitted to CMAST from Degree Programme Open Entrance (COPEN)

Year 3

Mandatory courses (27.0 Credits)

Course code	Course name	Credits	Edu. level
ME1003	Industrial Management, Basic Course	6.0 hp	First cycle
MF1045	Product realization - Engineering Design	6.0 hp	First cycle
MG1026	Manufacturing Technology	6.0 hp	First cycle
MJ1112	Applied Thermodynamics	9.0 hp	First cycle

Supplementary information

Information is based upon the curriculum for academic year 2020/2021. Changes may occur.

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 courses *SF1915 Probability Theory and Statistics* and *MH1004 Engineering Materials*, should not be read by students attending the international profile. However, the following courses should be included study year 3, *MG1026 Manufacturing Technology* and *MJ1112 Applied Thermodynamics*

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.

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

- Aerospace Engineering
- Vehicle Engineering
- Industrial Management
- Integrated Product Design
Track, Innovation Management and Product Development
- Engineering Design
Track, Combustion Engineering
Track, Machine Design
Track, Mechatronics
- Naval Architecture
- Applied and Computational Mathematics
- Nuclear Energy Engineering
- Production Engineering Management
Recommended profiles: Industrial IT-systems, Industrial welding, Production engineering and management and Production development
- Sustainable Energy Engineering
- Sustainable Technology
- Engineering Mechanics
Track, Fluid Mechanics
Track, Solid Mechanics
Track, Sound and Vibrations

Some Masterprograms require specific courses during study year 3.

International Profile, german (INTT)

Year 2

Mandatory courses (60.0 Credits)

Course code	Course 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
SE1010	Solid Mechanics, Basic Course with Project	12.0 hp	First cycle
SF1514	Numerical Methods, Basic Course	6.0 hp	First cycle
SF1633	Differential Equations I	6.0 hp	First cycle
SG1140	Mechanics II	6.0 hp	First cycle

Conditionally elective courses

Course code	Course name	Credits	Edu. level
MG1028	Introductory 3D CAD Mandatory for students admitted from COPEN	1.5 hp	First cycle

Supplementary information

Information regarding conditionally elective courses

The course MG1028 is mandatory for students admitted to CMAST from Degree Programme Open Entrance (COPEN)

Year 3

Mandatory courses (27.0 Credits)

Course code	Course name	Credits	Edu. level
ME1003	Industrial Management, Basic Course	6.0 hp	First cycle
MF1045	Product realization - Engineering Design	6.0 hp	First cycle
MG1026	Manufacturing Technology	6.0 hp	First cycle
MJ1112	Applied Thermodynamics	9.0 hp	First cycle

Supplementary information

Information is based upon the curriculum for academic year 2020/2021. Changes may occur.

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 courses *SF1915 Probability Theory and Statistics* and *MH1004 Engineering Materials*, should not be read by students attending the international profile. However, the following courses should be included study year 3, *MG1026 Manufacturing Technology* and *MJ1112 Applied Thermodynamics*

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.

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

- Aerospace Engineering
- Vehicle Engineering
- Industrial Management
- Integrated Product Design
Track, Innovation Management and Product Development
- Engineering Design
Track, Combustion Engineering
Track, Machine Design
Track, Mechatronics
- Naval Architecture
- Applied and Computational Mathematics
- Nuclear Energy Engineering
- Production Engineering Management
Recommended profiles: Industrial IT-systems, Industrial welding, Production engineering and management and Production development
- Sustainable Energy Engineering
- Sustainable Technology
- Engineering Mechanics
Track, Fluid Mechanics
Track, Solid Mechanics
Track, Sound and Vibrations

Some Masterprograms require specific courses during study year 3.

Track, Innovation Management and Product Development (IPDE)

Year 3

Mandatory courses (18.0 Credits)

Course code	Course name	Credits	Edu. level
MF1045	Product realization - Engineering Design	6.0 hp	First cycle
MH1004	Engineering Materials	6.0 hp	First cycle
ML1018	Fundamental Industrial Statistics	6.0 hp	First cycle

Conditionally elective courses

Course code	Course name	Credits	Edu. level
-------------	-------------	---------	------------

DD1320	Applied Computer Science	6.0 hp	First cycle
EL1000	Automatic Control, General Course EL1010 can be chosen instead of EL1000.	6.0 hp	First cycle
EL1010	Automatic Control, General Course EL1000 can be chosen instead of EL1010.	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
MJ1401	Heat Transfer	6.0 hp	First cycle
SA118X	Degree Project in Mechanical Engineering, First Level	15.0 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 SG1220 can be chosen instead of SG1217.	6.0 hp	First cycle
SG1220	Fluid Mechanics for Engineers SG1217 can be chosen instead of SG1220.	6.0 hp	First cycle

Supplementary information

Information is based upon the curriculum for academic year 2017/2018. Changes may occur.

At least two of the conditionally elective courses must be chosen, and one of the following degree project for a Degree of Bachelor must be chosen, independently of chosen masters programme:

- SA118X
- MF131X
- MF133X
- MF123X
- MG110X
- MJ146X

Track, Machine Design (IPUB)

Year 3

Mandatory courses (18.0 Credits)

Course code	Course name	Credits	Edu. level
MF1045	Product realization - Engineering Design	6.0 hp	First cycle
MH1004	Engineering Materials	6.0 hp	First cycle
ML1018	Fundamental Industrial Statistics	6.0 hp	First cycle

Conditionally elective courses

Course code	Course name	Credits	Edu. level
DD1320	Applied Computer Science	6.0 hp	First cycle
EL1000	Automatic Control, General Course EL1010 can be chosen instead of EL1000.	6.0 hp	First cycle
EL1010	Automatic Control, General Course EL1000 can be chosen instead of EL1010.	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
MJ1401	Heat Transfer	6.0 hp	First cycle
SA118X	Degree Project in Mechanical Engineering, First Level	15.0 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 SG1220 can be chosen instead of SG1217.	6.0 hp	First cycle
SG1220	Fluid Mechanics for Engineers SG1217 can be chosen instead of SG1220.	6.0 hp	First cycle

Supplementary information

Information is based upon the curriculum for academic year 2017/2018. Changes may occur.

At least two of the conditionally elective courses must be chosen, and one of the following degree project for a Degree of Bachelor must be chosen, independently of chosen masters programme:

- SA118X
- MF131X
- MF133X
- MF123X
- MG110X
- MJ146X

Track, Mechatronics (IPUC)

Year 3

Mandatory courses (33.0 Credits)

Course code	Course name	Credits	Edu. level
DD1321	Applied Programming and Computer Science	9.0 hp	First cycle
EL1000	Automatic Control, General Course EL1010 can be chosen instead of EL1000.	6.0 hp	First cycle
MF1045	Product realization - Engineering Design	6.0 hp	First cycle

MH1004	Engineering Materials	6.0 hp	First cycle
ML1018	Fundamental Industrial Statistics	6.0 hp	First cycle

Conditionally elective courses

Course code	Course name	Credits	Edu. level
SA118X	Degree Project in Mechanical Engineering, First Level	15.0 hp	First cycle

Recommended courses

Course code	Course 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
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 SG1220 can be chosen instead of SG1217.	6.0 hp	First cycle
SG1220	Fluid Mechanics for Engineers SG1217 can be chosen instead of SG1220.	6.0 hp	First cycle

Supplementary information

Information is based upon the curriculum for academic year 2017/2018. Changes may occur.

One of the following degree project for Degree of Bachelor must be chosen, independently of chosen masters programme:

- SA118X
- MF131X
- MF133X
- MF123X
- MG110X
- MJ146X

Industrial Technology and Sustainability (ITSY)

Master, Naval Architecture (MRS)

Year 3

Mandatory courses (18.0 Credits)

Course code	Course name	Credits	Edu. level
MF1045	Product realization - Engineering Design	6.0 hp	First cycle
MH1004	Engineering Materials	6.0 hp	First cycle
ML1018	Fundamental Industrial Statistics	6.0 hp	First cycle

Conditionally elective courses

Course code	Course name	Credits	Edu. level
DD1320	Applied Computer Science	6.0 hp	First cycle
EL1000	Automatic Control, General Course EL1010 can be chosen instead of EL1000.	6.0 hp	First cycle
EL1010	Automatic Control, General Course EL1000 can be chosen instead of EL1010.	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
MJ1401	Heat Transfer	6.0 hp	First cycle
SA118X	Degree Project in Mechanical Engineering, First Level	15.0 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 One of the courses SG1220 or SG1217 must be chosen for eligibility to the Master's programme, Naval Architecture.	6.0 hp	First cycle
SG1220	Fluid Mechanics for Engineers One of the courses SG1220 or SG1217 must be chosen for eligibility to the Master's programme, Naval Architecture.	6.0 hp	First cycle

Supplementary information

Information is based upon the curriculum for academic year 2017/2018. Changes may occur.

At least two of the conditionally elective courses must be chosen, and at least one of the courses SG1217 or SG1220 must be chosen.

One of the following degree project for Degree of Bachelor must be chosen, independently of chosen masters programme:

- SA118X
- MF131X
- MF133X
- MF123X
- MG110X

- MJ146X

Master, Mathematics (MTH)

Year 3

Mandatory courses (24.0 Credits)

Course code	Course 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
SF1901	Probability Theory and Statistics	6.0 hp	First cycle
SF1904	Markov Processes, Basic Course	3.0 hp	First cycle

Conditionally elective courses

Course code	Course name	Credits	Edu. level
DD1320	Applied Computer Science	6.0 hp	First cycle
EL1000	Automatic Control, General Course EL1010 can be chosen instead of EL1000.	6.0 hp	First cycle
EL1010	Automatic Control, General Course EL1000 can be chosen instead of EL1010.	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
MJ1401	Heat Transfer	6.0 hp	First cycle
SA118X	Degree Project in Mechanical Engineering, First Level	15.0 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 SG1220 can be chosen instead of SG1217.	6.0 hp	First cycle
SG1220	Fluid Mechanics for Engineers SG1217 can be chosen instead of SG1220.	6.0 hp	First cycle

Supplementary information

Information is based upon the curriculum for academic year 2017/2018. Changes may occur.

At least two of the conditionally elective courses must be chosen, and one of the following degree project for a Degree of Bachelor must be chosen, independently of chosen masters programme:

- SA118X
- MF131X
- MF133X
- MF123X
- MG110X
- MJ146X

Year 4

Supplementary information

Information is based upon the curriculum for academic year 2018/2019. Changes may occur.

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

Master, Nuclear Energy Engineering (NEE)

Year 3

Mandatory courses (26.0 Credits)

Course code	Course name	Credits	Edu. level
MF1045	Product realization - Engineering Design	6.0 hp	First cycle
MH1004	Engineering Materials	6.0 hp	First cycle
ML1018	Fundamental Industrial Statistics	6.0 hp	First cycle
SH1012	Modern Physics	8.0 hp	First cycle

Conditionally elective courses

Course code	Course name	Credits	Edu. level
DD1320	Applied Computer Science	6.0 hp	First cycle
EL1000	Automatic Control, General Course EL1010 can be chosen instead of EL1000.	6.0 hp	First cycle
EL1010	Automatic Control, General Course EL1000 can be chosen instead of EL1010.	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
MJ1401	Heat Transfer	6.0 hp	First cycle
SA118X	Degree Project in Mechanical Engineering, First Level	15.0 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 SG1220 can be chosen instead of SG1217.	6.0 hp	First cycle
SG1220	Fluid Mechanics for Engineers SG1217 can be chosen instead of SG1220.	6.0 hp	First cycle

Supplementary information

Information is based upon the curriculum for academic year 2017/2018. Changes may occur.

At least two of the conditionally elective courses must be chosen, and at least one of the courses SG1217 or SG1220 must be chosen.

One of the following degree project for Degree of Bachelor must be chosen, independently of chosen masters programme:

- SA118X
- MF131X

- MF133X
- MF123X
- MG110X
- MJ146X

Master, Production Engineering and Management (PRM)

Year 3

Mandatory courses (30.0 Credits)

Course code	Course 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
ML1018	Fundamental Industrial Statistics	6.0 hp	First cycle

Conditionally elective courses

Course code	Course name	Credits	Edu. level
SA118X	Degree Project in Mechanical Engineering, First Level	15.0 hp	First cycle

Recommended courses

Course code	Course name	Credits	Edu. level
DD1320	Applied Computer Science	6.0 hp	First cycle
EL1000	Automatic Control, General Course EL1010 can be chosen instead of EL1000.	6.0 hp	First cycle
EL1010	Automatic Control, General Course EL1000 can be chosen instead of EL1010.	6.0 hp	First cycle
ME2015	Project Management: Leadership and Control	6.0 hp	Second 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 SG1220 can be chosen instead of SG1217.	6.0 hp	First cycle
SG1220	Fluid Mechanics for Engineers SG1217 can be chosen instead of SG1220.	6.0 hp	First cycle

Supplementary information

Information is based upon the curriculum for academic year 2017/2018. Changes may occur.

One of the following degree project for Degree of Bachelor must be chosen, independently of chosen masters programme:

- SA118X
- MF131X
- MF133X
- MF123X
- MG110X
- MJ146X

Master, Sustainable Energy Engineering (SUE)

Year 3

Mandatory courses (24.0 Credits)

Course code	Course 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
ML1018	Fundamental Industrial Statistics	6.0 hp	First cycle

Conditionally elective courses

Course code	Course name	Credits	Edu. level
SA118X	Degree Project in Mechanical Engineering, First Level	15.0 hp	First cycle
SG1217	Fluid Mechanics, Basic Course One of the courses SG1217 or SG1220 must be chosen.	6.0 hp	First cycle
SG1220	Fluid Mechanics for Engineers One of the courses SG1220 or SG1217 must be chosen.	6.0 hp	First cycle

Recommended courses

Course code	Course name	Credits	Edu. level
DD1320	Applied Computer Science	6.0 hp	First cycle
EL1000	Automatic Control, General Course EL1010 can be chosen instead of EL1000.	6.0 hp	First cycle
EL1010	Automatic Control, General Course EL1000 can be chosen instead of EL1010.	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
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

Information is based upon the curriculum for academic year 2017/2018. Changes may occur.

One of the conditionally elective courses SG1217 or SG1220 must be chosen.

One of the following degree project for Degree of Bachelor must be chosen, independently of chosen masters programme:

- SA118X
- MF131X
- MF133X
- MF123X
- MG110X
- MJ146X

Master, Sustainable Technology (SUT)

Year 3

Mandatory courses (24.0 Credits)

Course code	Course 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

Course code	Course name	Credits	Edu. level
DD1320	Applied Computer Science	6.0 hp	First cycle
EL1000	Automatic Control, General Course EL1010 can be chosen instead of EL1000.	6.0 hp	First cycle
EL1010	Automatic Control, General Course EL1000 can be chosen instead of EL1010.	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
MJ1401	Heat Transfer	6.0 hp	First cycle
SA118X	Degree Project in Mechanical Engineering, First Level	15.0 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 SG1220 can be chosen instead of SG1217.	6.0 hp	First cycle
SG1220	Fluid Mechanics for Engineers SG1217 can be chosen instead of SG1220.	6.0 hp	First cycle

Supplementary information

Information is based upon the curriculum for academic year 2017/2018. Changes may occur.

At least two of the conditionally elective courses must be chosen, and one of the following degree project for a Degree of Bachelor must be chosen, independently of chosen masters programme:

- SA118X
- MF131X
- MF133X
- MF123X
- MG110X
- MJ146X

Year 4

Supplementary information

Information is based upon the curriculum for academic year 2018/2019. Changes may occur.

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

Track, Fluid Mechanics (TEMA)

Year 3

Mandatory courses (18.0 Credits)

Course code	Course name	Credits	Edu. level
MF1045	Product realization - Engineering Design	6.0 hp	First cycle

MH1004	Engineering Materials	6.0 hp	First cycle
ML1018	Fundamental Industrial Statistics	6.0 hp	First cycle

Conditionally elective courses

Course code	Course name	Credits	Edu. level
DD1320	Applied Computer Science	6.0 hp	First cycle
EL1000	Automatic Control, General Course EL1010 can be chosen instead of EL1000.	6.0 hp	First cycle
EL1010	Automatic Control, General Course EL1000 can be chosen instead of EL1010.	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
MJ1401	Heat Transfer	6.0 hp	First cycle
SA118X	Degree Project in Mechanical Engineering, First Level	15.0 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 One of the courses SG1220 or SG1217 must be chosen.	6.0 hp	First cycle
SG1220	Fluid Mechanics for Engineers One of the courses SG1220 or SG1217 must be chosen.	6.0 hp	First cycle

Supplementary information

Information is based upon the curriculum for academic year 2017/2018. Changes may occur.

At least two of the conditionally elective courses must be chosen, and at least one of the courses SG1217 or SG1220 must be chosen.

One of the following degree project for Degree of Bachelor must be chosen, independently of chosen masters programme:

- SA118X
- MF131X
- MF133X
- MF123X
- MG110X
- MJ146X

Track, Solid Mechanics (TEMB)

Year 3

Mandatory courses (24.0 Credits)

Course code	Course name	Credits	Edu. level
MF1045	Product realization - Engineering Design	6.0 hp	First cycle
MH1004	Engineering Materials	6.0 hp	First cycle
ML1018	Fundamental Industrial Statistics	6.0 hp	First cycle
SE1025	FEM for Engineering Applications	6.0 hp	First cycle

Conditionally elective courses

Course code	Course name	Credits	Edu. level
DD1320	Applied Computer Science	6.0 hp	First cycle
EL1000	Automatic Control, General Course EL1010 can be chosen instead of EL1000.	6.0 hp	First cycle
EL1010	Automatic Control, General Course EL1000 can be chosen instead of EL1010.	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
MJ1401	Heat Transfer	6.0 hp	First cycle
SA118X	Degree Project in Mechanical Engineering, First Level	15.0 hp	First cycle
SD1116	Design of Silent and Vibration-free Products	6.0 hp	First cycle
SG1217	Fluid Mechanics, Basic Course SG1220 can be chosen instead of SG1217.	6.0 hp	First cycle
SG1220	Fluid Mechanics for Engineers SG1217 can be chosen instead of SG1220.	6.0 hp	First cycle

Supplementary information

Information is based upon the curriculum for academic year 2017/2018. Changes may occur.

At least one of the conditionally elective courses must be chosen, and one of the following degree project for a Degree of Bachelor must be chosen, independently of chosen masters programme:

- SA118X
- MF131X
- MF133X
- MF123X
- MG110X
- MJ146X

Track, Sound and Vibrations (TEMC)

Year 3

Mandatory courses (24.0 Credits)

Course code	Course name	Credits	Edu. level
MF1045	Product realization - Engineering Design	6.0 hp	First cycle
MH1004	Engineering Materials	6.0 hp	First cycle
ML1018	Fundamental Industrial Statistics	6.0 hp	First cycle
SD1116	Design of Silent and Vibration-free Products	6.0 hp	First cycle

Conditionally elective courses

Course code	Course name	Credits	Edu. level
DD1320	Applied Computer Science	6.0 hp	First cycle
EL1000	Automatic Control, General Course EL1010 can be chosen instead of EL1000.	6.0 hp	First cycle
EL1010	Automatic Control, General Course EL1000 can be chosen instead of EL1010.	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
MJ1401	Heat Transfer	6.0 hp	First cycle
SA118X	Degree Project in Mechanical Engineering, First Level	15.0 hp	First cycle
SE1025	FEM for Engineering Applications	6.0 hp	First cycle
SG1217	Fluid Mechanics, Basic Course SG1220 can be chosen instead of SG1217.	6.0 hp	First cycle
SG1220	Fluid Mechanics for Engineers SG1217 can be chosen instead of SG1220.	6.0 hp	First cycle

Supplementary information

Information is based upon the curriculum for academic year 2017/2018. Changes may occur.

At least one of the conditionally elective courses must be chosen, and one of the following degree project for a Degree of Bachelor must be chosen, independently of chosen masters programme:

- SA118X
- MF131X
- MF133X
- MF123X
- MG110X
- MJ146X



Appendix 2: Specialisations

Degree Programme in Mechanical Engineering (CMAST), Programme syllabus for studies starting in autumn 2019

Master, Aerospace Engineering (AEE)

Master, Vehicle Engineering (FOR)

Master, Industrial Management (INE)

International Profile, french (INTF)

International Profile, spanish (INTS)

International Profile, german (INTT)

Track, Innovation Management and Product Development (IPDE)

Track, Machine Design (IPUB)

Track, Mechatronics (IPUC)

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)

Master, Mathematics (MTH)

Master, Nuclear Energy Engineering (NEE)

Master, Production Engineering and Management (PRM)

Master, Sustainable Energy Engineering (SUE)

Master, Sustainable Technology (SUT)

Track, Fluid Mechanics (TEMA)

Track, Solid Mechanics (TEMB)

Track, Sound and Vibrations (TEMC)