



Programme syllabus

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

Valid for students admitted to the education from autumn 15 (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 higher education 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 specialisation

The Degree Programme in Mechanical Engineering contains an international study specialisation. This specialisation 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 following applies to the Mechanical Engineering Degree Programme

The academic year 2015/2016 offers the following Master's programmes for a Degree of Master of Science in Mechanical Engineering

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.

Aerospace Engineering

Vehicle Engineering

Sustainable Energy Engineering

Industrial Engineering and Management

Production Engineering and Management

Engineering Design

Integrated Product Design (Innovation Management and Product Development)

Nuclear Energy Engineering

Naval Architecture

Applied Mathematics

Engineering Mechanics

Technology and Sustainable Development

For students undertaking the Master's programmes in Industrial Engineering and Management, Applied Mathematics, Technology and Sustainable Development a supplementary engineering profile is required for a Degree of Master of Science in Engineering to be awarded.

The following Erasmus Mundus 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:

Environmental Pathways for Sustainable Energy Systems (SELECT)

Turbomachinery Aeromechanic University Training (THRUST)

Management and Engineering of Environment and Energy (ME3)

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.

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 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.

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.

* 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

Programme arrangement

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.

The division of the academic year is presented on the KTH student web, <http://www.kth.se>

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.

A seven-grade criterion-referenced grading scale A-F is used for courses at KTH as final grades for courses at first and second cycle. A–E are grades corresponding to a pass, with A being the highest grade. The grades pass (P) and fail (F) are used as final grades when there are special reasons.

The grade F and Fx can be given for sections in a course. Fx implies a time-limited possibility of supplementing the work to achieve a grade of E

Conditions for participation in the programme

Semester registration

At the beginning of the semester, the student must submit a compulsory semester registration via their personal login at www.kth.se

Semester registration is required to take new courses and for credits awarded to be reported, and for any payments of student aid to be made by CSN.

Approved leave from studies

Approved leave from studies means that the student does not participate in the teaching for at least one study period. Approved leave from studies entitles the student to return to the studies at a specified time. During their approved leave from studies, the student may engage in supplementary tasks and participate in the examination of previously commenced courses.

Approved leave from studies is only granted during year 1 if exceptional reasons are found to exist.

Applications for approved leave from studies are made using a form that is submitted to the school's office of student affairs.

When a student intends to resume their studies, they should submit a new study application according to instructions from the school's office of student affairs.

For more information, see the KTH regulatory framework, www.kth.se

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 during the period 1-15 May.

Choice of Master's programme is made by the students within the Degree Programme according to instructions from the KTH admissions office. In addition to the general conditions for participation in the teaching of studies in year 4, second cycle, there are special entry requirements for each Master's programme. The assessment of the conditions and special entry requirements is performed by the admissions office.

Conditions for participation in the instruction

For studies in the next year, there are certain moving-up/performance requirements according to the programme's course list. Students who do not fulfil these requirements must establish an individual study plan together with the study advisor.

Requirements for moving up from year 1 to year 2:

- At least 45 credits from year 1

according to the course list of the programme syllabus for the Degree Programme in Mechanical Engineering. This is to be achieved by the end of the re-examination period in August.

For studies in year 2 with an international specialisation (Mechanical Engineering Degree Programme only)

In addition to the requirements for studies in year 2, the student must be 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.

When applying for an exchange semester, refer to the KTH regulatory framework for exchange studies www.kth.se.

Requirements for moving up from year 2 to year 3:

- At least 90 credits from year 1 and 2, of which
- at least 50 credits are from year 1,

according to the course list of the programme syllabus for the Degree Programme in Mechanical Engineering. This is to be achieved by the end of the re-examination period in August.

For studies in year 3 with an international specialisation (only the Mechanical Engineering Degree Programme)

In addition to the requirements for studies in year 3, the student must be proficient in either Spanish, German or French equivalent to level B1.

Students must also fulfil any requirements of the host university and be formally accepted as an exchange student there.

Requirements for moving up from year 3 to year 4/year 1 of the Master's Programme:

- At least 150 credits from years 1-3, of which
- at least 110 credits are from years 1-2, and
- a passed Bachelor's degree project (15 credits),

according to the course list of the programme syllabus the Degree Programmes: Mechanical Engineering. This is to be achieved by the end of the re-examination period in August.

Requirements for moving up from year 4 to year 5/year 1 to year 2 of the Master's Programme:

In addition to what is required for moving up to year 4/year 1 of the Master's Programme,

- at least 45 credits* from year 4/year 1 of the Master's Programme must be completed by the end of the re-examination period in August,

according to the course list of the programme syllabus for the Degree Programme: Mechanical Engineering

* In addition to compulsory courses, optional courses that are included in the degree may also be counted.

Individual study plan

Students who do not meet the above requirements should, in consultation with the programme's study advisor, establish an individual study plan for the continuing studies.

An individual study plan may mean that the student cannot be guaranteed full-time studies.
See the KTH regulatory framework: www.kth.se

Recognition of previous academic studies

Students have the opportunity to apply to be given credit for results from a course or courses at another higher education institution/university within or outside the country.

As the grading systems differ between countries and universities, grades are not translated to the KTH grading scale during credit transfer.

An application is made by submitting a form to the school's office of student affairs.

The entire KTH policy for credit transfer is included in the KTH regulatory framework. www.kth.se

Studies abroad

Students in the Program have the possibility to study abroad through the contracts KTH has with universities within EU and outside. Exchange studies can normally not be done in the first or second year. It is also possible to do the degree project work abroad.

The application deadline for studies abroad is around December 15th.

Degree project

Degree Project, First Cycle

The Degree Programme in Mechanical Engineering includes a degree project for a Degree of Bachelor of Science which comprises 15 credits. The degree project will be conducted during the spring term in study year 3.

In order to be eligible for the degree project, the following requirements are reported in Ladok before the degree project starts

- Promoted to grade 3.
- At least 120 credits of the program's mandatory courses.
- Specific requirements for the degree project course

In order to enable the approval of the exam in good time before the degree project begins in period 3, there is the possibility of meeting an alternative qualification requirement for degree projects that start spring term 2018. For this alternative eligibility, the following requirements are reported in Ladok at the latest, December 1, 2017

- Promoted to grade 3.
- At least 105 credits of the program's mandatory courses.

- Specific requirements for the degree project course

KTH's General Regulations for Degree Projects, first cycle, 15 credits for a Degree of Bachelor of Science 180 credits, are in KTH's regulations. www.kth.se

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 usually done during the spring term in study year 5. To begin the degree project is required

- At least 240 credits completed courses that may be included in the Degree in Master of Science in Engineering.
- Maximum 2 unfinished courses (mandatory and conditionally elective) from study year 1 - 3
- The requirement for studies in study year 5 are met.

KTH's General Regulations for Degree Projects, second cycle, 30 credits for a Degree in Master of Science in Engineering 300 credits, are in KTH's regulations. www.kth.se

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 three 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

Title of general qualification at second cycle

Master of Science (120 credits)

Teknologie masterexamen

Refer to the KTH guidelines (KTH regulatory framework), local directions for higher education qualifications at first and second cycle, the local Degree Ordinance

<http://intra.kth.se/regelverk>

[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 2015

General courses

Year 1

Mandatory courses (60.0 Credits)

| Course code | Course 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)

| Course code | Course 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 |

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 |
|------------------------|---|---------|-------------|
| 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

A degree project for Degree of Bachelor must be chosen during study year 3, independently of chosen masters programme (see list of conditionally elective courses).

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.

Year 4

Supplementary information

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.

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)

| 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 | 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 |
|------------------------|--|---------|-------------|
| DD1320 | Applied Computer Science 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 |
| 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 |
| SF1901 | Probability Theory and Statistics SF1901 can be chosen instead of ML1018. | 6.0 hp | First cycle |

Supplementary information

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:

- MF130X Degree Project in Machine Design, First Cycle
- MF131X Degree Project in Integrated Product Development, First Cycle
- MF133X Degree Project in Mechatronics, First Cycle
- MJ146X Degree Project in Technology and Sustainable Development, First Cycle
- AL126X Degree Project in Technology and Sustainable Development, First Cycle
- MG110X Degree Project in Production Engineering, First Cycle
- SA118X Degree Project in Mechanical Engineering, First Level

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 |
| ML1018 | Fundamental Industrial Statistics | 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 |
| 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 |

Recommended courses

| Course code | Course name | Credits | Edu. level |
|------------------------|--|---------|-------------|
| SF1901 | Probability Theory and Statistics SF1901 can be chosen instead of ML1018. | 6.0 hp | First cycle |

Supplementary information

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:

- MF130X Degree Project in Machine Design, First Cycle
- MF131X Degree Project in Integrated Product Development, First Cycle
- MF133X Degree Project in Mechatronics, First Cycle
- MJ146X Degree Project in Technology and Sustainable Development, First Cycle
- AL126X Degree Project in Technology and Sustainable Development, First Cycle
- MG110X Degree Project in Production Engineering, First Cycle
- SA118X Degree Project in Mechanical Engineering, First Level

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 | 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) | 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 |
| EL1010 | Automatic Control, General Course | 6.0 hp | First cycle |
| MG1002 | Automation Technology | 6.0 hp | First cycle |
| | Production | | |
| MG1024 | The course gives eligibility to the course MG2029, within Technical profile: 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 |
| | Fluid Mechanics, Basic Course | | |
| SG1217 | SG1220 can be chosen instead of SG1217. | 6.0 hp | First cycle |
| | Fluid Mechanics for Engineers | | |
| SG1220 | SG1217 can be chosen instead of SG1220. | 6.0 hp | First cycle |

Recommended courses

| Course code | Course name | Credits | Edu. level |
|------------------------|---|---------|-------------|
| | Probability Theory and Statistics | | |
| SF1901 | SF1901 can be chosen instead of ML1018. | 6.0 hp | First cycle |

Supplementary information

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

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

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

- MF130X Degree Project in Machine Design, First Cycle
- MF131X Degree Project in Integrated Product Development, First Cycle
- MF133X Degree Project in Mechatronics, First Cycle
- MJ146X Degree Project in Technology and Sustainable Development, First Cycle
- AL126X Degree Project in Technology and Sustainable Development, First Cycle
- MG110X Degree Project in Production Engineering, First Cycle
- SA118X Degree Project in Mechanical Engineering, First Level

Year 4

Supplementary information

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

International Profile, french (INTF)

Year 2

Mandatory courses (64.5 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 |
| MG1026 | Manufacturing Technology | 6.0 hp | First cycle |
| MG1028 | Introductory 3D CAD | 1.5 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 |

Supplementary information

International profile in French.

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

Year 3

Mandatory courses (12.0 Credits)

| Course code | Course name | Credits | Edu. level |
|------------------------|---|---------|-------------|
| ME1003 | Industrial Management, Basic Course | 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 ML1018 Fundamental Industrial Statistics, should not be read by students attending the international profile. Instead the courses SF1633 Differential Equations and ME1003 Industrial Management, basic course 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:

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

- Aerospace Engineering
- Vehicle Engineering
- Sustainable Energy Engineering
- Industrial Management
- 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
- Naval Architecture
- Sustainable Technology
- Engineering Mechanics
Track, Fluid Mechanics
Track, Solid Mechanics
Track, Sound and Vibrations

Some Masterprograms require specific courses during year 3.

International Profile, spanish (INTS)

Year 2

Mandatory courses (64.5 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 |
| MG1026 | Manufacturing Technology | 6.0 hp | First cycle |
| MG1028 | Introductory 3D CAD | 1.5 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 |

Supplementary information

International profile in Spanish.

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

Year 3

Mandatory courses (12.0 Credits)

| Course code | Course name | Credits | Edu. level |
|------------------------|---|---------|-------------|
| ME1003 | Industrial Management, Basic Course | 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 ML1018 Fundamental Industrial Statistics, should not be read by students attending the international profile. Instead the courses SF1633 Differential Equations and ME1003 Industrial Management, basic course 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.

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

- Aerospace Engineering
- Vehicle Engineering
- Sustainable Energy Engineering
- Industrial Management

- 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
- Naval Architecture
- Sustainable Technology
- Engineering Mechanics
Track, Fluid Mechanics
Track, Solid Mechanics
Track, Sound and Vibrations

Some Masterprograms require specific courses during year 3.

International Profile, german (INTT)

Year 2

Mandatory courses (64.5 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 |
| MG1026 | Manufacturing Technology | 6.0 hp | First cycle |
| MG1028 | Introductory 3D CAD | 1.5 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 |

Supplementary information

International profile in German.

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

Year 3

Mandatory courses (12.0 Credits)

Course

| code | Course name | Credits | Edu. level |
|------------------------|---|---------|-------------|
| ME1003 | Industrial Management, Basic Course | 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 ML1018 Fundamental Industrial Statistics, should not be read by students attending the international profile. Instead the courses SF1633 Differential Equations and ME1003 Industrial Management, basic course 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.

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

- Aerospace Engineering
- Vehicle Engineering
- Sustainable Energy Engineering
- Industrial Management
- 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
- Naval Architecture
- Sustainable Technology
- Engineering Mechanics
Track, Fluid Mechanics
Track, Solid Mechanics
Track, Sound and Vibrations

Some Masterprograms require specific courses during 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 |
|------------------------|--|---------|--------------|
| | 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 |
| 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 |
| 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 |
| | Fluid Mechanics, Basic Course | | |
| SG1217 | SG1220 can be chosen instead of SG1217. | 6.0 hp | First cycle |
| | Fluid Mechanics for Engineers | | |
| SG1220 | SG1217 can be chosen instead of SG1220. | 6.0 hp | First cycle |

Recommended courses

| Course code | Course name | Credits | Edu. level |
|------------------------|--|---------|-------------|
| SF1901 | Probability Theory and Statistics SF1901 can be chosen instead of ML1018. | 6.0 hp | First cycle |

Supplementary information

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:

- MF130X Degree Project in Machine Design, First Cycle
- MF131X Degree Project in Integrated Product Development, First Cycle
- MF133X Degree Project in Mechatronics, First Cycle
- MJ146X Degree Project in Technology and Sustainable Development, First Cycle

- AL126X Degree Project in Technology and Sustainable Development, First Cycle
- MG110X Degree Project in Production Engineering, First Cycle
- SA118X Degree Project in Mechanical Engineering, First Level

Track, Combustion Engineering (IPUA)

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 | 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) | 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 |
| | Fluid Mechanics, Basic Course | | |
| SG1217 | SG1220 can be chosen instead of SG1217. | 6.0 hp | First cycle |
| | Fluid Mechanics for Engineers | | |
| SG1220 | SG1217 can be chosen instead of SG1220. | 6.0 hp | First cycle |

Recommended courses

| Course code | Course name | Credits | Edu. level |
|------------------------|--|---------|-------------|
| SF1901 | Probability Theory and Statistics SF1901 can be chosen instead of ML1018. | 6.0 hp | First cycle |

Supplementary information

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:

- MF130X Degree Project in Machine Design, First Cycle
- MF131X Degree Project in Integrated Product Development, First Cycle
- MF133X Degree Project in Mechatronics, First Cycle
- MJ146X Degree Project in Technology and Sustainable Development, First Cycle
- AL126X Degree Project in Technology and Sustainable Development, First Cycle
- MG110X Degree Project in Production Engineering, First Cycle
- SA118X Degree Project in Mechanical Engineering, First Level

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 DD1321 can be chosen instead of DD1320 depending on previous knowledge (see course syllabus) | 6.0 hp | First cycle |
| DD1321 | Applied Programming and Computer Science 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 |
| 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 Fluid Mechanics, Basic Course | 6.0 hp | First cycle |

| | | | |
|------------------------|--|--------|-------------|
| SG1217 | 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 |
|------------------------|--|---------|-------------|
| SF1901 | Probability Theory and Statistics SF1901 can be chosen instead of ML1018. | 6.0 hp | First cycle |

Supplementary information

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:

- MF130X Degree Project in Machine Design, First Cycle
- MF131X Degree Project in Integrated Product Development, First Cycle
- MF133X Degree Project in Mechatronics, First Cycle
- MJ146X Degree Project in Technology and Sustainable Development, First Cycle
- AL126X Degree Project in Technology and Sustainable Development, First Cycle
- MG110X Degree Project in Production Engineering, First Cycle
- SA118X Degree Project in Mechanical Engineering, First Level

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 |
| 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 | 6.0 hp | First cycle |

Recommended courses

| Course code | Course name | Credits | Edu. level |
|------------------------|---|---------|-------------|
| DD1320 | Applied Computer Science DD1320 and DD1324 can together replace DD1321 | 6.0 hp | First cycle |

| | | | |
|------------------------|---|--------|--------------|
| DD1324 | Applied Programming and Computer Science, Part 2 DD1320 and DD1324 can together replace DD1321 | 3.0 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 |
| SF1901 | Probability Theory and Statistics SF1901 can be chosen instead of ML1018. | 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

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

- MF130X Degree Project in Machine Design, First Cycle
- MF131X Degree Project in Integrated Product Development, First Cycle
- MF133X Degree Project in Mechatronics, First Cycle
- MJ146X Degree Project in Technology and Sustainable Development, First Cycle
- AL126X Degree Project in Technology and Sustainable Development, First Cycle
- MG110X Degree Project in Production Engineering, First Cycle
- SA118X Degree Project in Mechanical Engineering, First Level

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 |
|-------------|--|---------|------------|
| | 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 |
| 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 Fluid Mechanics, Basic Course | 6.0 hp | First cycle |
| SG1217 | One of the courses SG1220 or SG1217 must be chosen for eligibility to the Master's programme, Naval Architecture. Fluid Mechanics for Engineers | 6.0 hp | First cycle |
| SG1220 | One of the courses SG1220 or SG1217 must be chosen for eligibility to the Master's programme, Naval Architecture. | 6.0 hp | First cycle |

Recommended courses

| Course code | Course name | Credits | Edu. level |
|------------------------|--|---------|-------------|
| SF1901 | Probability Theory and Statistics SF1901 can be chosen instead of ML1018. | 6.0 hp | First cycle |

Supplementary information

At least two of the conditionally elective courses must be chosen,
Notice: At least one of the courses *SG1217 Fluid Mechanics, Basic Course* or *SG1220 Fluid Mechanics for Engineers* must be chosen for eligibility to the Master's Programme, Naval Architecture.

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

- MF130X Degree Project in Machine Design, First Cycle
- MF131X Degree Project in Integrated Product Development, First Cycle
- MF133X Degree Project in Mechatronics, First Cycle
- MJ146X Degree Project in Technology and Sustainable Development, First Cycle
- AL126X Degree Project in Technology and Sustainable Development, First Cycle
- MG110X Degree Project in Production Engineering, First Cycle
- SA118X Degree Project in Mechanical Engineering, First Level

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 DD1321 can be chosen instead of DD1320 depending on previous knowledge (see course syllabus) | 6.0 hp | First cycle |
| DD1321 | Applied Programming and Computer Science 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 |
| 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

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:

- MF130X Degree Project in Machine Design, First Cycle
- MF131X Degree Project in Integrated Product Development, First Cycle
- MF133X Degree Project in Mechatronics, First Cycle
- MJ146X Degree Project in Technology and Sustainable Development, First Cycle

- AL126X Degree Project in Technology and Sustainable Development, First Cycle
- MG110X Degree Project in Production Engineering, First Cycle
- SA118X Degree Project in Mechanical Engineering, First Level

Year 4

Supplementary information

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 |
|------------------------|--|----------------|-------------------|
| | 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 |
| 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 |
| 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 |
| | Fluid Mechanics, Basic Course | | |
| SG1217 | SG1220 can be chosen instead of SG1217. | 6.0 hp | First cycle |
| | Fluid Mechanics for Engineers | | |
| SG1220 | SG1217 can be chosen instead of SG1220. | 6.0 hp | First cycle |

Recommended courses

| Course code | Course name | Credits | Edu. level |
|------------------------|--|----------------|-------------------|
| SF1901 | Probability Theory and Statistics SF1901 can be chosen instead of ML1018. | 6.0 hp | First cycle |

Supplementary information

At least two of the conditionally elective courses must be chosen,
 Notice: At least one of the courses *SG1217 Fluid Mechanics, Basic Course* or *SG1220 Fluid Mechanics for Engineers* must be chosen for eligibility to the Master's Programme, Nuclear Energy Engineering.

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

- MF130X Degree Project in Machine Design, First Cycle
- MF131X Degree Project in Integrated Product Development, First Cycle
- MF133X Degree Project in Mechatronics, First Cycle
- MJ146X Degree Project in Technology and Sustainable Development, First Cycle
- AL126X Degree Project in Technology and Sustainable Development, First Cycle
- MG110X Degree Project in Production Engineering, First Cycle
- SA118X Degree Project in Mechanical Engineering, First Level

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 |

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 |
| EL1010 | Automatic Control, General Course | 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 |
| | Probability Theory and Statistics | | |
| SF1901 | SF1901 can be chosen instead of ML1018. | 6.0 hp | First cycle |
| | Fluid Mechanics, Basic Course | | |
| SG1217 | SG1220 can be chosen instead of SG1217 | 6.0 hp | First cycle |
| | Fluid Mechanics for Engineers | | |
| SG1220 | SG1217 can be chosen instead of SG1220 | 6.0 hp | First cycle |

Supplementary information

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

- MF130X Degree Project in Machine Design, First Cycle
- MF131X Degree Project in Integrated Product Development, First Cycle
- MF133X Degree Project in Mechatronics, First Cycle
- MJ146X Degree Project in Technology and Sustainable Development, First Cycle
- AL126X Degree Project in Technology and Sustainable Development, First Cycle
- MG110X Degree Project in Production Engineering, First Cycle
- SA118X Degree Project in Mechanical Engineering, First Level

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 |
|------------------------|--|---------|-------------|
| 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 |
|------------------------|--|---------|-------------|
| DD1320 | Applied Computer Science DD1321 can be chosen instead of DD1320 depending on previous knowledge (see course syllabus) | 6.0 hp | First cycle |
| DD1321 | Applied Programming and Computer Science 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 |
| 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 |
| SF1901 | Probability Theory and Statistics | 6.0 hp | First cycle |
| | SF1901 can be chosen instead of ML1018. | | |

Supplementary information

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:

- MF130X Degree Project in Machine Design, First Cycle
- MF131X Degree Project in Integrated Product Development, First Cycle
- MF133X Degree Project in Mechatronics, First Cycle
- MJ146X Degree Project in Technology and Sustainable Development, First Cycle
- AL126X Degree Project in Technology and Sustainable Development, First Cycle
- MG110X Degree Project in Production Engineering, First Cycle
- SA118X Degree Project in Mechanical Engineering, First Level

Master, Sustainable Technology (SUT)

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 |
| MJ2613 | Sustainable Development | 6.0 hp | Second cycle |
| ML1018 | Fundamental Industrial Statistics | 6.0 hp | First cycle |

Conditionally elective courses

| Course code | Course name | Credits | Edu. level |
|------------------------|--|---------|-------------|
| DD1320 | Applied Computer Science | | |
| | 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 |
| EL1010 | Automatic Control, General Course | 6.0 hp | First cycle |
| ME2015 | Project Management: Leadership and Control | 6.0 hp | Second cycle |
| MG1002 | Automation Technology Production | 6.0 hp | First cycle |
| MG1024 | The course gives eligibility to the course MG2029, within Technical profile: 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 |
|------------------------|--|---------|-------------|
| SF1901 | Probability Theory and Statistics SF1901 can be chosen instead of ML1018. | 6.0 hp | First cycle |

Supplementary information

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:

- MF130X Degree Project in Machine Design, First Cycle
- MF131X Degree Project in Integrated Product Development, First Cycle
- MF133X Degree Project in Mechatronics, First Cycle
- MJ146X Degree Project in Technology and Sustainable Development, First Cycle
- AL126X Degree Project in Technology and Sustainable Development, First Cycle
- MG110X Degree Project in Production Engineering, First Cycle
- SA118X Degree Project in Mechanical Engineering, First Level

Year 4

Supplementary information

CMASST-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 DD1320 can be chosen instead of DD1321 depending on previous knowledge (see course syllabus) | 6.0 hp | First cycle |
| DD1321 | Applied Programming and Computer Science 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 |
| 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 |

Recommended courses

| Course code | Course name | Credits | Edu. level |
|------------------------|--|---------|-------------|
| SF1901 | Probability Theory and Statistics SF1901 can be chosen instead of ML1018. | 6.0 hp | First cycle |

Supplementary information

At least two of the conditionally elective courses must be chosen, and at least one of the courses *SG1217 Fluid Mechanics, Basic Course* or *SG1220 Fluid Mechanics for Engineers* must be chosen.

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

- MF130X Degree Project in Machine Design, First Cycle
- MF131X Degree Project in Integrated Product Development, First Cycle
- MF133X Degree Project in Mechatronics, First Cycle
- MJ146X Degree Project in Technology and Sustainable Development, First Cycle
- AL126X Degree Project in Technology and Sustainable Development, First Cycle
- MG110X Degree Project in Production Engineering, First Cycle
- SA118X Degree Project in Mechanical Engineering, First Level

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 |
|------------------------|--|---------|--------------|
| | 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 |
| 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 |
| MJ1401 | Heat Transfer | 6.0 hp | First cycle |
| SD1116 | Design of Silent and Vibration-free Products | 6.0 hp | First cycle |
| | Fluid Mechanics, Basic Course | | |

| | | | |
|------------------------|--|--------|-------------|
| SG1217 | 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 |
|------------------------|--|---------|-------------|
| SF1901 | Probability Theory and Statistics SF1901 can be chosen instead of ML1018. | 6.0 hp | First cycle |

Supplementary information

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:

- MF130X Degree Project in Machine Design, First Cycle
- MF131X Degree Project in Integrated Product Development, First Cycle
- MF133X Degree Project in Mechatronics, First Cycle
- MJ146X Degree Project in Technology and Sustainable Development, First Cycle
- AL126X Degree Project in Technology and Sustainable Development, First Cycle
- MG110X Degree Project in Production Engineering, First Cycle
- SA118X Degree Project in Mechanical Engineering, First Level

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 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 |
| 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 |
| 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 |
|------------------------|--|---------|-------------|
| SF1901 | Probability Theory and Statistics SF1901 can be chosen instead of ML1018. | 6.0 hp | First cycle |

Supplementary information

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:

- MF130X Degree Project in Machine Design, First Cycle
- MF131X Degree Project in Integrated Product Development, First Cycle
- MF133X Degree Project in Mechatronics, First Cycle
- MJ146X Degree Project in Technology and Sustainable Development, First Cycle
- AL126X Degree Project in Technology and Sustainable Development, First Cycle
- MG110X Degree Project in Production Engineering, First Cycle
- SA118X Degree Project in Mechanical Engineering, First Level



Appendix 2: Specialisations

Degree Programme in Mechanical Engineering (CMAST), Programme syllabus for studies starting in autumn 2015

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, Combustion Engineering (IPUA)

Track, Machine Design (IPUB)

Track, Mechatronics (IPUC)

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)