Programme syllabus

Degree Programme in Mechanical Engineering
Civilingenjörsutbildning i maskinteknik
300.0 credits

Valid for students admitted to the education from autumn 11 (HT - Autumn term; VT - Spring term).

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

Programme objectives

Beyond the objectives that are specified in the Higher Education Ordinance, a graduate from the programme will…

Knowledge and understanding

- Have a broad technical and scientific base to be able to work in several technical areas with product development, production, and manufacturing or energy issues. More specifically, be familiar with choice of materials, energy sources, production methods or assessment of economical or environmental consequences, etc.
- Show a broad aptitude in the chosen technical area, including knowledge in mathematics and sciences, as well as a deeper knowledge in certain parts of the study area.

Skills and abilities

- Be able to apply knowledge and abilities in a practical environment while making relevant assessments and taking standpoints scientifically, professionally and socially, both in a group as well as independently
- Show a good ability to analyze, formulate and handle technical problems while considering the problem from beginning to end: from the ideas or requirements to specification, development, operation and finally, termination. Moreover, the ability to define, determine resource demand and lead processes to problem-solution and realisation.
- Show certain abilities to lead activities on different organisational levels, in different types of organisational life-cycle stages and different types of business logic.
- Have individual and professional skills such as language, leadership, project-management and communication for work as an engineer in a leadership position or as a leader in a technically intensive company.
- Have a basic understanding of entrepreneurial activities

Ability to make judgements and adopt a standpoint

- Have especially good understanding that engineering-related problems are often complex, incompletely defined and sometimes contain contradictions
- Show an reflecting attitude to responsibility and ethics in relation to technical, organisational, economical, ecological and societal activities.

The local degree ordinance of the Royal Institute of Technology can be found in the KTH-Regulations. intra.kth.se/regelverk

Extent and content of the programme

The programme consists of 300 credits which correspond to five years of full-time studies.
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

The language of instruction in the first cycle is mainly swedish.
The language of instruction in the second cycle is mainly english.

**Eligibility and selection**

In order to study at KTH, basic eligibility requirements must be fulfilled. In addition, the following special eligibility requirements must be fulfilled for Masters of Science in Engineering programmes at KTH:

Mathematics course E, Physics course B and Chemistry course A or the corresponding equivalents. All of the courses must have been completed with at least a grade of pass (godkänd) or 3. Other studies or work experience will be assessed on the basics of the actual competence adduced.

More information regarding KTH’s admission policy can be found in the KTH-Regulations. [intra.kth.se/regelverk](http://intra.kth.se/regelverk)

**Implementation of the education**

**Structure of the education**

**Structure of the Programme**

Academic year, terms, and study periods can be found in the KTH-Regulations [intra.kth.se](http://intra.kth.se)

**Study years 1-3, studies in the first-cycle**

The study programme consists of the mandatory courses in years 1-3 in the first-cycle (G), and a Master's Programme in the second-cycle (A) in years 4 and 5, which concludes with a 30 credits degree project.

The programme is organised around courses in the mathematical, technically scientific and technical applied subjects. The education in and usage of professional skills and abilities of significant importance for a Master of Science in Engineering, for example: communication, ethics, entrepreneurship, sustainable development, company- and societal aspects, are integrated into the courses.

In order to make the programme comprehensive, collaboration is emphasized between the different subjects and throughout the entire programme. The courses are scheduled and coordinated in such a way that this is reached through common project work and hand-in assignments, etc.

The programme is structured in such a way that a student can choose to get a Degree of Bachelor of Science in Engineering after three years of study. This makes it possible for students to continue their studies abroad or at other universities in Sweden.

**Mathematically natural science courses**
Most of the courses in basic mathematical and natural science are in the first year. The remainder is placed in the second year.

**Technical courses**

Throughout years 1-3, the student will study basic technical scientific courses in Mechanical Engineering such as strength of materials and solid mechanics, thermodynamics, construction, and production.

The first three years conclude with a 15 credits of degree project for the Degree of Bachelor of Science in Engineering in the chosen technical area. After completing 180 credits, the students can apply for the Degree of Bachelor of Science in Engineering if the degree requirements are fulfilled.

**Study years 4-5, studies in the second cycle**

The Master programme consists mainly of advanced courses and ends with a degree project work within one specific technical scientific area. Students in the Mechanical Engineering programme can choose between a wide range of Masters with set study plans. The student is guaranteed a place on their chosen master.

The knowledge about the environment and sustainable development is deepened and solidified by being integrated into the programme’s courses with special focus on for example: life-cycle analysis, environmental effects and choice of material, which is associated with the chosen Master programme.

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

**Courses**

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

**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.

**Conditions for participation in the programme**

*Term Enrolment and Course Application*

A prerequisite to be allowed to participate in the studies is that the student verifies enrollment for courses the coming term every spring and fall. This is done via www.antagning.se between the 1st and 15th of November and the 1st and 15th of May.

By verifying his/her enrolment, the student has submitted his/her intention to continue studying and participating in the programme. After that it is possible for the student to:

- registered for courses
• have results reported
• have the possibility to receive financial support from CSN

Conditions for participation in each year of the programme

For studying in year 2:

At least 45 credits from year 1 must be completed by the end of the exam period in August. Students who don’t fulfill this requirement must design an individual study plan with a guidance officer.

For studying in year 3:

At least 90 credits from years 1 and 2 must be completed by the end of the exam period in August. Students who don’t fulfill this requirement must design an individual study plan with a guidance officer.

For studying in year 4:

At least 150 credits from years 1-3, including a degree project, 15 credits, must be completed by the end of the exam period in August. Students who don’t fulfill this requirement must design an individual study plan with a guidance officer.

For studying in year 5:

At least 195 credits from years 1, 2, 3 and 4 of which at least 45 credits from year 4 must be completed by the end of the exam period in August. Students who don’t fulfill this requirement must design an individual study plan with a guidance officer.

Selection of Master programmes

In preparation for year 4, second cycle, the student chooses a master programme within their Master of Science in Engineering degree programme. This is done between the 1st and 15th of May. The choice of master programme within their Master of Science in Engineering degree programme for the fall 2012 is done according to the instruction provided by the Students Office within the University administration at KTH. Apart from the basic eligibility requirements for study in the second cycle (year 4) each master has specific requirements. The evaluation of the basic and specific requirements is made by the Students office within the University administration at KTH.

Recognition of previous academic studies

The student has the possibility to apply to receive credit for results from previous studies at another university within the country or abroad.

KTH’s policy for receiving credit from previous academic studies is available in its entirety in the KTH’s Regulations. intra.kth.se/regelverk

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

The degree project consists of 30 credits.

Students are required to have a minimum of 240 credits within the programme before beginning the degree project.

KTH’s rules for the degree project are available in the KTH-Regulations intra.kth.se/regelverk
**Degree**

In order to graduate as a Master of Science in Engineering, Degree Programme in Mechanical Engineering the student must be approved in every course that is included in the student’s study plan. The study plan must consist of 300 credits including 30 credits of degree project work.

Reference to the local degree policy is available in the KTH-Regulations.

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 2011

**General courses**

**Year 1**

**Mandatory courses (60.0 credits)**

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course name</th>
<th>Credits</th>
<th>Edu. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>DN1212</td>
<td>Numerical Methods and Basic Programming</td>
<td>9.0</td>
<td>First cycle</td>
</tr>
<tr>
<td>MJ1103</td>
<td>Introduction to Mechanical Engineering</td>
<td>10.5</td>
<td>First cycle</td>
</tr>
<tr>
<td>SF1624</td>
<td>Algebra and Geometry</td>
<td>7.5</td>
<td>First cycle</td>
</tr>
<tr>
<td>SF1625</td>
<td>Calculus in One Variable</td>
<td>7.5</td>
<td>First cycle</td>
</tr>
<tr>
<td>SF1626</td>
<td>Calculus in Several Variable</td>
<td>7.5</td>
<td>First cycle</td>
</tr>
<tr>
<td>SG1130</td>
<td>Mechanics I</td>
<td>9.0</td>
<td>First cycle</td>
</tr>
<tr>
<td>SK1112</td>
<td>Physics I</td>
<td>9.0</td>
<td>First cycle</td>
</tr>
</tbody>
</table>

**Year 2**

**Mandatory courses (60.0 credits)**

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course name</th>
<th>Credits</th>
<th>Edu. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>ME1003</td>
<td>Industrial Management, Basic Course</td>
<td>6.0</td>
<td>First cycle</td>
</tr>
<tr>
<td>MF1016</td>
<td>Basic Electrical Engineering</td>
<td>9.0</td>
<td>First cycle</td>
</tr>
<tr>
<td>MF1044</td>
<td>Machine Components</td>
<td>6.0</td>
<td>First cycle</td>
</tr>
<tr>
<td>MG1026</td>
<td>Manufacturing Technology</td>
<td>6.0</td>
<td>First cycle</td>
</tr>
<tr>
<td>MJ1112</td>
<td>Applied Thermodynamics</td>
<td>9.0</td>
<td>First cycle</td>
</tr>
<tr>
<td>SE1010</td>
<td>Solid Mechanics, Basic Course with Project</td>
<td>12.0</td>
<td>First cycle</td>
</tr>
<tr>
<td>SF1633</td>
<td>Differential Equations I</td>
<td>6.0</td>
<td>First cycle</td>
</tr>
<tr>
<td>SG1140</td>
<td>Mechanics II</td>
<td>6.0</td>
<td>First cycle</td>
</tr>
</tbody>
</table>
Year 3

**Mandatory courses (24.0 credits)**

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course name</th>
<th>Credits</th>
<th>Edu. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>MF1045</td>
<td>Product realization - Engineering Design</td>
<td>6.0</td>
<td>First cycle</td>
</tr>
<tr>
<td>MG1024</td>
<td>Production</td>
<td>6.0</td>
<td>First cycle</td>
</tr>
<tr>
<td>MH1004</td>
<td>Engineering Materials</td>
<td>6.0</td>
<td>First cycle</td>
</tr>
<tr>
<td>ML1018</td>
<td>Fundamental Industrial Statistics</td>
<td>6.0</td>
<td>First cycle</td>
</tr>
</tbody>
</table>

**Supplementary information**

One Bachelor Thesis must be taken during year 3.

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.

Year 4

Year 5

**Master, Aerospace Engineering (AEE)**

Year 1

Year 2

Year 3

**Mandatory courses (6.0 credits)**

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course name</th>
<th>Credits</th>
<th>Edu. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>EL1120</td>
<td>Automatic Control, General Course</td>
<td>6.0</td>
<td>First cycle</td>
</tr>
</tbody>
</table>
### Conditionally elective courses

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course name</th>
<th>Credits</th>
<th>Edu. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>SA108X</td>
<td>Degree Project in Mechanical Engineering, First Cycle</td>
<td>15.0</td>
<td>First cycle</td>
</tr>
<tr>
<td></td>
<td><em>One degree project must be chosen</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SG1217</td>
<td>Fluid Mechanics, Basic Course</td>
<td>6.0</td>
<td>First cycle</td>
</tr>
<tr>
<td></td>
<td><em>SG1217 or SG1220 must be taken</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SG1220</td>
<td>Fluid Mechanics for Engineers</td>
<td>6.0</td>
<td>First cycle</td>
</tr>
<tr>
<td></td>
<td><em>SG1217 or SG1220 must be taken</em></td>
<td></td>
<td></td>
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</tbody>
</table>

### Recommended courses

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course name</th>
<th>Credits</th>
<th>Edu. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>SE1025</td>
<td>FEM for Engineering Applications</td>
<td>6.0</td>
<td>First cycle</td>
</tr>
</tbody>
</table>

### Supplementary information

*One degree project must be chosen*

**Year 4**

Supplementary information

Course list: [http://www.kth.se/student/kurser/program/TAEEM/HT14/arskurs1](http://www.kth.se/student/kurser/program/TAEEM/HT14/arskurs1)

**Year 5**

Supplementary information

Course list: [https://www.kth.se/student/kurser/program/TAEEM/HT14/arskurs2?l=en](https://www.kth.se/student/kurser/program/TAEEM/HT14/arskurs2?l=en)

**Master, Vehicle Engineering (FOR)**

**Year 1**

**Year 2**

**Year 3**

**Mandatory courses (18.0 credits)**

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course name</th>
<th>Credits</th>
<th>Edu. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>EL1120</td>
<td>Automatic Control, General Course</td>
<td>6.0</td>
<td>First cycle</td>
</tr>
<tr>
<td>SD1116</td>
<td>Design of Silent and Vibration-free Products</td>
<td>6.0</td>
<td>First cycle</td>
</tr>
<tr>
<td>SG1217</td>
<td>Fluid Mechanics, Basic Course</td>
<td>6.0</td>
<td>First cycle</td>
</tr>
</tbody>
</table>
Conditionally elective courses

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course name</th>
<th>Credits</th>
<th>Edu. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>SA108X</td>
<td>Degree Project in Mechanical Engineering, First Cycle</td>
<td>15.0</td>
<td>First cycle</td>
</tr>
</tbody>
</table>

*One degree project must be chosen*

**Year 4**

**Supplementary information**

Course list: [http://www.kth.se/student/kurser/program/TFORM/HT14/arskurs1](http://www.kth.se/student/kurser/program/TFORM/HT14/arskurs1)

**Year 5**

**Supplementary information**

Course list: [https://www.kth.se/student/kurser/program/TFORM/HT14/arskurs2?l=en](https://www.kth.se/student/kurser/program/TFORM/HT14/arskurs2?l=en)

**Master, Industrial Management (INE)**

**Year 1**

**Year 2**

**Year 3**

Mandatory courses (12.0 credits)

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course name</th>
<th>Credits</th>
<th>Edu. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>ME2015</td>
<td>Project Management: Leadership and Control</td>
<td>6.0</td>
<td>Second cycle</td>
</tr>
<tr>
<td>ME2063</td>
<td>Team Leadership and Human Resource Management</td>
<td>6.0</td>
<td>Second cycle</td>
</tr>
</tbody>
</table>

Conditionally elective courses

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course name</th>
<th>Credits</th>
<th>Edu. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>MG100X</td>
<td>Degree Project in Production Engineering, First Cycle</td>
<td>15.0</td>
<td>First cycle</td>
</tr>
</tbody>
</table>

*One degree project must be chosen*

**Supplementary information**

One Bachelor Thesis must be taken during year 3.

During year 4 and 5, CDEPR and CMAST students must choose a technical profil from the following topics:

- Energy
- Production
- Machine Design

One technical elective course should be chosen.
Year 4

Supplementary information

Year 4 and 5, please see the master programme: http://www.kth.se/student/kurser/program/TINEM/HT14/arskurs1

Year 5

Supplementary information

Year 4 and 5, please see the master programme: https://www.kth.se/student/kurser/program/TINEM/HT14/arskurs2?l=en

Track, Concurrent Engineering (IPDB)

Year 1

Year 2

Year 3

Conditionally elective courses

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course name</th>
<th>Credits</th>
<th>Edu. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>MF121X</td>
<td>Degree Project in Integrated Product Development, First Cycle</td>
<td>15.0</td>
<td>First cycle</td>
</tr>
</tbody>
</table>

Supplementary information

There are no prerequisite courses.

Year 4

Supplementary information

Course list: http://www.kth.se/student/kurser/program/TIPDM/HT14/arskurs1

Year 5

Supplementary information

Course list: http://www.kth.se/student/kurser/program/TIPDM/HT14/arskurs2?l=en

2 of the Conditionally elective courses must be taken during year 1 or 2

- MF2006
- MF2023 (CDEPR STUDENTS ARE NOT ALLOWED TO TAKE THIS)
- MF2038
- MG2020
- MF2046
Track, Product Innovation (IPDD)

Year 1

Year 2

Year 3

Conditionally elective courses

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course name</th>
<th>Credits</th>
<th>Edu. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>MF121X</td>
<td>Degree Project in Integrated Product Development, First Cycle</td>
<td>15.0</td>
<td>First cycle</td>
</tr>
</tbody>
</table>

Supplementary information

One degree project must be chosen.
There are no prerequisite courses. During year 4 and 5, CDEPR and CMAST students must choose a technical profil from the following topics:

- Energy
- Production
- Machine Design

Year 4

Supplementary information

Course list: http://www.kth.se/student/kurser/program/TIPDM/HT14/arskurs1

Year 5

Supplementary information

Course list: http://www.kth.se/student/kurser/program/TIPDM/HT14/arskurs2?l=en

Track, Combustion Engineering (IPUA)

Year 1

Year 2

Year 3

Conditionally elective courses

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course name</th>
<th>Credits</th>
<th>Edu. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>EL1000</td>
<td>Automatic Control, General Course</td>
<td>6.0</td>
<td>First cycle</td>
</tr>
<tr>
<td></td>
<td>EL1000 or EL1120 must be taken</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EL1120</td>
<td>Automatic Control, General Course</td>
<td>6.0</td>
<td>First cycle</td>
</tr>
<tr>
<td></td>
<td>EL1000 or EL1120 must be taken</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MF120X</td>
<td>Degree Project in Machine Design, First Cycle</td>
<td>15.0</td>
<td>First cycle</td>
</tr>
</tbody>
</table>
Year 4

Supplementary information
Course list: http://www.kth.se/student/kurser/program/TIPUM/HT14/arskurs1

Year 5

Supplementary information
Course list: https://www.kth.se/student/kurser/program/TIPUM/HT14/arskurs2?l=en

Track, Machine Design (IPUB)

Year 1

Year 2

Year 3

Supplementary information
There are no prerequisite courses.

Year 4

Supplementary information
Course list: http://www.kth.se/student/kurser/program/TIPUM/HT14/arskurs1

Year 5

Supplementary information
Course list: https://www.kth.se/student/kurser/program/TIPUM/HT14/arskurs2?l=en

Track, Mechatronics (IPUC)

Year 1

Year 2

Year 3

Mandatory courses (9.0 credits)

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course name</th>
<th>Credits</th>
<th>Edu. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>DD1321</td>
<td>Applied Programming and Computer Science</td>
<td>9.0</td>
<td>First cycle</td>
</tr>
</tbody>
</table>

Conditionally elective courses

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course name</th>
<th>Credits</th>
<th>Edu. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>EL1000</td>
<td>Automatic Control, General Course</td>
<td>6.0</td>
<td>First cycle</td>
</tr>
<tr>
<td></td>
<td><em>EL1000 or EL1120 must be taken</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EL1120</td>
<td>Automatic Control, General Course</td>
<td>6.0</td>
<td>First cycle</td>
</tr>
</tbody>
</table>

Study Programme for Degree Programme in Mechanical Engineering batch autumn 11.
Appendix 1, page 7 of 14
### Course code | Course name | Credits | Edu. level
--- | --- | --- | ---
MF123X | Degree Project in Mechatronics, First Cycle | 15.0 | First cycle

**Year 4**

**Supplementary information**

Course list: [http://www.kth.se/student/kurser/program/TIPUM/HT14/arskurs1](http://www.kth.se/student/kurser/program/TIPUM/HT14/arskurs1)

**Year 5**

**Supplementary information**

Course list: [https://www.kth.se/student/kurser/program/TIPUM/HT14/arskurs2?l=en](https://www.kth.se/student/kurser/program/TIPUM/HT14/arskurs2?l=en)

### Master, Naval Architecture (MRS)

**Year 1**

**Year 2**

**Year 3**

**Conditionally elective courses**

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course name</th>
<th>Credits</th>
<th>Edu. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>SA108X</td>
<td>Degree Project in Mechanical Engineering, First Cycle</td>
<td>15.0</td>
<td>First cycle</td>
</tr>
<tr>
<td>SG1217</td>
<td>Fluid Mechanics, Basic Course</td>
<td>6.0</td>
<td>First cycle</td>
</tr>
<tr>
<td>SG1220</td>
<td>Fluid Mechanics for Engineers</td>
<td>6.0</td>
<td>First cycle</td>
</tr>
</tbody>
</table>

**Year 4**

**Supplementary information**

Course list: [http://www.kth.se/student/kurser/program/TMRSM/HT14/arskurs1](http://www.kth.se/student/kurser/program/TMRSM/HT14/arskurs1)

**Year 5**

**Supplementary information**

Course list: [https://www.kth.se/student/kurser/program/TMRSM/HT14/arskurs2?l=en](https://www.kth.se/student/kurser/program/TMRSM/HT14/arskurs2?l=en)
**Master, Mathematics (MTH)**

**Year 1**

**Year 2**

**Year 3**

**Mandatory courses (12.0 credits)**

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course name</th>
<th>Credits</th>
<th>Edu. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>SF1632</td>
<td>Complementary Course in Differential Equations and Transforms</td>
<td>3.0</td>
<td>First cycle</td>
</tr>
<tr>
<td>SF1901</td>
<td>Probability Theory and Statistics</td>
<td>6.0</td>
<td>First cycle</td>
</tr>
<tr>
<td>SF1904</td>
<td>Markov Processes, Basic Course</td>
<td>3.0</td>
<td>First cycle</td>
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</table>

**Conditionally elective courses**

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course name</th>
<th>Credits</th>
<th>Edu. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>SA108X</td>
<td>Degree Project in Mechanical Engineering, First Cycle</td>
<td>15.0</td>
<td>First cycle</td>
</tr>
</tbody>
</table>

**Supplementary information**

During year 4 and 5, CMAST students must follow a technical profile:

MG2130 and MJ2380

**Year 4**

**Supplementary information**

Course list: [http://www.kth.se/student/kurser/program/TTMAM/HT14/arskurs1](http://www.kth.se/student/kurser/program/TTMAM/HT14/arskurs1)

**Year 5**

**Supplementary information**

Course list: [https://www.kth.se/student/kurser/program/TTMAM/HT14/arskurs2?l=en](https://www.kth.se/student/kurser/program/TTMAM/HT14/arskurs2?l=en)
Master, Nuclear Energy Engineering (NEE)

Year 1

Year 2

Year 3

Mandatory courses (8.0 credits)

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<tbody>
<tr>
<td>SH1012</td>
<td>Modern Physics</td>
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Conditionally elective courses

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<th>Course code</th>
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<th>Credits</th>
<th>Edu. level</th>
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</thead>
<tbody>
<tr>
<td>SA108X</td>
<td>Degree Project in Mechanical Engineering, First Cycle</td>
<td>15.0</td>
<td>First cycle</td>
</tr>
<tr>
<td>SG1217</td>
<td>Fluid Mechanics, Basic Course</td>
<td>6.0</td>
<td>First cycle</td>
</tr>
<tr>
<td></td>
<td><em>SG1217 or SG1220 must be taken</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SG1220</td>
<td>Fluid Mechanics for Engineers</td>
<td>6.0</td>
<td>First cycle</td>
</tr>
<tr>
<td></td>
<td><em>SG1217 or SG1220 must be taken</em></td>
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Year 4

Supplementary information
Course list: [http://www.kth.se/student/kurser/program/TNEEM/HT14/arskurs1](http://www.kth.se/student/kurser/program/TNEEM/HT14/arskurs1)

Year 5

Supplementary information
Course list: [https://www.kth.se/student/kurser/program/TNEEM/HT14/arskurs2?l=en](https://www.kth.se/student/kurser/program/TNEEM/HT14/arskurs2?l=en)

Master, Production Engineering and Management (PRM)

Year 1

Year 2

Year 3

Mandatory courses (6.0 credits)

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<tr>
<td>MG1002</td>
<td>Automation Technology</td>
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Conditionally elective courses

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<tr>
<td>MG100X</td>
<td>Degree Project in Production Engineering, First Cycle</td>
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</table>

Year 4

Supplementary information
Course list: http://www.kth.se/student/kurser/program/TPRMM/HT14/arskurs1

Year 5

Supplementary information
Course list: https://www.kth.se/student/kurser/program/TPRMM/HT14/arskurs2?l=en

Master, Sustainable Energy Engineering (SUE)

Year 1

Year 2

Year 3

Mandatory courses (18.0 credits)

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course name</th>
<th>Credits</th>
<th>Edu. level</th>
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</thead>
<tbody>
<tr>
<td>MJ1401</td>
<td>Heat Transfer</td>
<td>6.0</td>
<td>First cycle</td>
</tr>
<tr>
<td>MJ2424</td>
<td>Computational Methods in Energy Technology</td>
<td>6.0</td>
<td>Second cycle</td>
</tr>
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<td></td>
<td>Can be taken during year 3 or four.</td>
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</tr>
<tr>
<td>SG1220</td>
<td>Fluid Mechanics for Engineers</td>
<td>6.0</td>
<td>First cycle</td>
</tr>
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Conditionally elective courses

<table>
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<tr>
<th>Course code</th>
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<th>Credits</th>
<th>Edu. level</th>
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</thead>
<tbody>
<tr>
<td>MJ145X</td>
<td>Degree Project in Sustainable Energy Engineering, First Cycle</td>
<td>15.0</td>
<td>First cycle</td>
</tr>
</tbody>
</table>

Year 4

Supplementary information
Course list: http://www.kth.se/student/kurser/program/TSUEM/HT14/arskurs1

Year 5

Supplementary information
Course list: https://www.kth.se/student/kurser/program/TSUEM/HT14/arskurs2?l=en
Master, Sustainable Technology (SUT)

Year 1

Year 2

Year 3

Mandatory courses (12.0 credits)

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course name</th>
<th>Credits</th>
<th>Edu. level</th>
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</thead>
<tbody>
<tr>
<td>MJ2611</td>
<td>Introduction Industrial Ecology</td>
<td>6.0</td>
<td>Second cycle</td>
</tr>
<tr>
<td>MJ2613</td>
<td>Sustainable Development</td>
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<td>Second cycle</td>
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Conditionally elective courses

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<th>Credits</th>
<th>Edu. level</th>
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<tbody>
<tr>
<td>MJ154X</td>
<td>Degree Project in Technology and Sustainable Development, First Cycle</td>
<td>15.0</td>
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Year 4

Supplementary information
Course list: http://www.kth.se/student/kurser/program/TSUTM/HT14/arskurs1

Year 5

Supplementary information
Course list: https://www.kth.se/student/kurser/program/TSUTM/HT14/arskurs2?l=en

Track, Fluid Mechanics (TEMA)

Year 1

Year 2

Year 3

Mandatory courses (6.0 credits)

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<th>Course name</th>
<th>Credits</th>
<th>Edu. level</th>
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</thead>
<tbody>
<tr>
<td>SG1220</td>
<td>Fluid Mechanics for Engineers</td>
<td>6.0</td>
<td>First cycle</td>
</tr>
</tbody>
</table>
### Conditionally elective courses

<table>
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<tr>
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<th>Credits</th>
<th>Edu. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>SA108X</td>
<td>Degree Project in Mechanical Engineering, First Cycle</td>
<td>15.0</td>
<td>First cycle</td>
</tr>
</tbody>
</table>

#### Year 4

**Supplementary information**

Course list: http://www.kth.se/student/kurser/program/TTEMM/HT14/arskurs1

#### Year 5

**Supplementary information**

Course list: https://www.kth.se/student/kurser/program/TTEMM/HT14/arskurs2

### Track, Solid Mechanics (TEMB)

#### Year 1

#### Year 2

#### Year 3

**Mandatory courses (6.0 credits)**

<table>
<thead>
<tr>
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<th>Credits</th>
<th>Edu. level</th>
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</thead>
<tbody>
<tr>
<td>SE1025</td>
<td>FEM for Engineering Applications</td>
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</tr>
<tr>
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<td><em>Is also given during Period 1 taught in English</em></td>
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### Conditionally elective courses

<table>
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<tr>
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<tbody>
<tr>
<td>SA108X</td>
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<td>15.0</td>
<td>First cycle</td>
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</table>

#### Year 4

**Supplementary information**

Course list: http://www.kth.se/student/kurser/program/TTEMM/HT14/arskurs1

#### Year 5

**Supplementary information**

Course list: https://www.kth.se/student/kurser/program/TTEMM/HT14/arskurs2?l=en
Track, Sound and Vibrations (TEMC)

Year 1

Year 2

Year 3

Mandatory courses (6.0 credits)

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course name</th>
<th>Credits</th>
<th>Edu. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>SD1116</td>
<td>Design of Silent and Vibration-free Products</td>
<td>6.0</td>
<td>First cycle</td>
</tr>
</tbody>
</table>

Conditionally elective courses

<table>
<thead>
<tr>
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<td>Degree Project in Mechanical Engineering, First Cycle</td>
<td>15.0</td>
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</table>

Year 4

Supplementary information

Course list: http://www.kth.se/student/kurser/program/TTEMM/HT14/arskurs1

Year 5

Supplementary information

Course list: https://www.kth.se/student/kurser/program/TTEMM/HT14/arskurs2?l=en
Appendix 2: Specialisations

Degree Programme in Mechanical Engineering (CMAST), Programme syllabus for studies starting in autumn 2011

Master, Aerospace Engineering (AEE)
Master, Vehicle Engineering (FOR)
Master, Industrial Management (INE)
Track, Concurrent Engineering (IPDB)
Track, Product Innovation (IPDD)
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)