Programme syllabus

Master's Programme, Production Engineering and Management, 120 credits
Masterprogram, industriell produktion
120.0 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
Beyond the goals which are specified by the Higher Degree ordinance, there are also specific goals for this programme.

A graduate from the programme must:

Knowledge and understanding

- have a broad scientific foundation for work within the production engineering area
- have an understanding for how different variables interact in the multi-disciplinary area which constitutes production engineering

Skills and abilities

- have the ability in presentation and communication which constitutes good prerequisites for an efficient work within a group as well as individually
- be able to use standard tools and techniques in order to solve problems within the production engineering area
- have the ability to handle collaboration between engineer and management related functions
- have a good ability to utilize modern modelling and simulation methods as support for decisions
- have developed and deepened the analytical and reasoning abilities which are required in order to handle the continuously changing problems and challenges within the area of production engineering
- have the ability to analyze, synthesise and implement a production system
- Show a good ability to analyze, formulate and handle technical and organisational problems within different production systems with regards to economically, personnel-related and environmentally sustainable conditions

Ability to make judgements and adopt a standpoint

- understand the central role of production engineering for development and competition in the global economy
- have developed a rational perspective on energy efficient process technologies and production systems
- have insights about how surroundings and cultural differences affect production processes
- understand that competence development is the foundation for modern production

KTH’s local degree ordinance can be found in KTH’s guidelines www.kth.se

Extent and content of the programme
The programme comprises 120 higher education credits which is equivalent to two years of full-time study. Instruction is either in Swedish or English.
Eligibility and selection

In order to be eligible for the Master’s programme in Production Engineering and Management, a relevant higher education degree, Bachelor of Science in Engineering or technical Bachelor within Mechanical Engineering or suitable engineering area comprising 180 higher education credits is required.

Other studies or work experiences are judged by competencies referred to. For KTH’s programmes with English as the language of instruction, there is a special requirement of English B or the corresponding knowledge.

The selection process is based on the following selection criteria: University, previous studies (for instance GPA, grades in specific subjects and English), motivation for the studies (for instance letter of motivation, references, thesis proposal and relevant work experience). The evaluation scale is 1-75.

For more information, refer to KTH’s degree ordinance which can be found in KTH’s guidelines, www.kth.se

Implementation of the education

Structure of the education

Study years, terms, and study periods are described in KTH’s guidelines, www.kth.se

Structure of the education

The programme consists, during the first three terms, of compulsory courses, profile courses and elective courses. The programme has three recommended profiles: Production development, Industrial IT-systems and Production Engineering and Management. There is also possible to create a special designed profile. The last term’s studies are spent on the degree project.

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.

Selection of track

The students choose a track before the start of the second term at the time of course registration, between the 1st and 15th of November.

Conditions for participation in the programme

For studies in study year 2:

At least 45 higher education credits must be completed from study year 1 by the end of the examination period in August. Students who have not fulfilled this requirement must, in collaboration with a study adviser, create an individual study plan. The main intent with the individual study plan is that the student will complete the remaining elements during the next coming study year. In the study plan, the remaining elements should be included as well as suitable courses from the next study year. Special consideration should be given to the courses’ prerequisites.
Recognition of previous academic studies
The student has the possibility to apply for recognition of previous academic studies from course(s) from another university or higher education institution, national or international.

KTH’s entire policy for recognition of previous academic studies can be found in KTH’s guidelines www.kth.se

Studies abroad
Students within the programme have the possibility to implement a part of the curriculum at ENSAM in France. There is also a possibility to obtain a degree from each university. Students from ENSAM have the same possibility to study a part of their education at KTH within Masterprogrammet Industrial Production. This may even lead to degrees from both universities.

Students in the programme have the possibility to carry out the degree project outside of Sweden.

Degree project
KTH’s guidelines for degree projects can be found at www.kth.se. Generally, the main portion of the studies must be completed before the degree project can be started.

Degree
In order to earn the Degree of Master of Science (120 credits), passing grades in all courses which are included in the student’s study plan are required. The study plan must comprise 120 higher education credits which include a degree project consisting of 30 higher education credits, in the second cycle.

KTH’s local degree ordinance can be found at http://intra.kth.se/regelverk/
Appendix 1 - Course list
Appendix 2 - Programme syllabus descriptions
## Appendix 1: Course list

Master's Programme, Production Engineering and Management, 120 credits (TPRMM), Programme syllabus for studies starting in autumn 2015

### General courses

#### Year 1

**Mandatory courses (22.5 credits)**

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course name</th>
<th>Credits</th>
<th>Edu. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>MG2029</td>
<td>Production Engineering - Planning and Control</td>
<td>6.0</td>
<td>Second cycle</td>
</tr>
<tr>
<td>MG2100</td>
<td>Scientific Methodology for Production Engineering</td>
<td>7.5</td>
<td>Second cycle</td>
</tr>
<tr>
<td></td>
<td><em>(Profile Industrial Welding can take AK2036 year 2 period 1)</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MG2130</td>
<td>Modelling and Simulation of Industrial Processes</td>
<td>9.0</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>DD1320</td>
<td>Applied Computer Science</td>
<td>6.0</td>
<td>First cycle</td>
</tr>
<tr>
<td></td>
<td><em>Profile industrial IT-systems</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ME2053</td>
<td>Logistics &amp; Supply Chain Management</td>
<td>6.0</td>
<td>Second cycle</td>
</tr>
<tr>
<td></td>
<td><em>Can be taken in year 2</em></td>
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</tr>
<tr>
<td>MG1007</td>
<td>Contemporary Maintenance Techniques</td>
<td>6.0</td>
<td>First cycle</td>
</tr>
<tr>
<td></td>
<td><em>Profile Production Engineering and Management, one of the courses ME1003 or MG1007 should be taken</em></td>
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<td></td>
</tr>
<tr>
<td>MG1010</td>
<td>Introductory Welding Technology, General Course</td>
<td>6.0</td>
<td>First cycle</td>
</tr>
<tr>
<td></td>
<td><em>Profile Industrial Welding</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MG1011</td>
<td>Introductory Welding Technology, Advanced Course</td>
<td>6.0</td>
<td>First cycle</td>
</tr>
<tr>
<td></td>
<td><em>Profile Industrial Welding</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MG1012</td>
<td>None Destructive Testing</td>
<td>3.0</td>
<td>First cycle</td>
</tr>
<tr>
<td></td>
<td><em>Profile Industrial Welding</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MG2010</td>
<td>Modern Industrial Metrology</td>
<td>6.0</td>
<td>Second cycle</td>
</tr>
<tr>
<td></td>
<td><em>Profile Production Engineering and Management</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MG2013</td>
<td>Advanced Welding Technology, Modulus 1</td>
<td>6.0</td>
<td>Second cycle</td>
</tr>
<tr>
<td></td>
<td><em>Profile Industrial Welding</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Course code</td>
<td>Course name</td>
<td>Credits</td>
<td>Edu. level</td>
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</tbody>
</table>
| MG2014      | Advanced Welding Technology, Modulus 2  
Profile Industrial Welding | 6.0 | Second cycle |
| MG2015      | Advanced Welding Technology, Modulus 3  
Profile Industrial Welding | 6.0 | Second cycle |
| MG2016      | Enlarged Welding Technology for EWE/IWE  
Profile Industrial Welding | 6.0 | Second cycle |
| MG2020      | Modularisation of Products  
Profile Production development | 6.0 | Second cycle |
| MG2022      | Advanced CAD Modelling and Rapid Prototyping, Project Course  
Profile industrial IT-systems | 6.0 | Second cycle |
| MG2028      | CAD and Other IT Tools in Industrial Processes  
One of the courses MG2028/MG2128 must be taken | 6.0 | Second cycle |
| MG2032      | Automation Technology, Advanced Course 1  
Profile Production development | 6.0 | Second cycle |
| MG2033      | Quality Control  
Profile Production development, Profile Production engineering and management. MG2033 or MG2202 must be taken. If you don’t have knowledge in statistics you must take MG2202 | 6.0 | Second cycle |
| MG2036      | Computer Aided Manufacturing - CAM  
Profile industrial IT-systems | 6.0 | Second cycle |
| MG2103      | Industrial Process Engineering  
Profile Production Engineering and Management | 6.0 | Second cycle |
| MG2104      | Manufacturing Technology and Planning  
Profile Production Engineering and Management. Only for TPRMM master students (not for Civiling.) | 7.5 | Second cycle |
| MG2128      | CAD and Other IT Tools in Industrial Processes, Extended Course  
One one the course MG2128/MG2028 must be taken | 7.5 | Second cycle |
| MG2135      | PLM - Product Lifecycle Management  
Profile industrial IT-systems | 9.0 | Second cycle |
| MG2202      | Quality Control  
Profile Production development, Profile Production engineering and management. MG2033 or MG2202 must be taken. If you don’t have knowledge in statistics you must take MG2202 | 9.0 | Second cycle |

**Supplementary information**

The Programme have four profiles:

- Industrial IT-systems
- Production development
- Production engineering and management
- Industrial Welding

MG2028 is mandatory for KTH M.Sc students (civiling.)
MG2128 is mandatory for TPRMM master students.
# Year 2

### 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>MG2027</td>
<td>Production Engineering - Project Course</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>MG2009</td>
<td>Advanced Manufacturing Technology</td>
<td>6.0</td>
<td>Second cycle</td>
</tr>
<tr>
<td></td>
<td><em>Profile: Production development (on of MG2109 or MG2009 should be taken)</em></td>
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</tr>
<tr>
<td>MG2037</td>
<td>Industrial Adhesive Bonding</td>
<td>6.0</td>
<td>Second cycle</td>
</tr>
<tr>
<td></td>
<td><em>Profile: Industrial welding</em></td>
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<td></td>
</tr>
<tr>
<td>MG2038</td>
<td>Digital Factories</td>
<td>6.0</td>
<td>Second cycle</td>
</tr>
<tr>
<td></td>
<td><em>Profile: Industrial IT-systems</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MG2109</td>
<td>Advanced Manufacturing Technology, Extended Course</td>
<td>9.0</td>
<td>Second cycle</td>
</tr>
<tr>
<td></td>
<td><em>Profile: Production engineering and management (one of the courses MG2109 or MG2110)</em></td>
<td></td>
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</tr>
<tr>
<td>MG2110</td>
<td>Advanced Metrology</td>
<td>9.0</td>
<td>Second cycle</td>
</tr>
<tr>
<td></td>
<td><em>Profile: Production engineering and management (one of the courses MG2109 or MG2110)</em></td>
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<td></td>
</tr>
<tr>
<td>MG212X</td>
<td>Degree Project in Production Engineering, Second Cycle</td>
<td>30.0</td>
<td>Second cycle</td>
</tr>
<tr>
<td></td>
<td><em>MG212x or MG213x is compulsory</em></td>
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</tr>
<tr>
<td>MG213X</td>
<td>Degree Project in Production Engineering and Management, Second Cycle</td>
<td>30.0</td>
<td>Second cycle</td>
</tr>
<tr>
<td></td>
<td><em>MG212x or MG213x is compulsory</em></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Supplementary information

The Programme have four profiles:

- Industrial IT-systems
- Production development
- Production engineering and management
- Industrial Welding

Conditionally elective ME2053 is cancelled Autumn 2016 - replaced by ME2065, decision M-2016-0571

# Year 3
Appendix 2: Specialisations

Master's Programme, Production Engineering and Management, 120 credits (TPRMM), Programme syllabus for studies starting in autumn 2015

This programme has no specialisations.