Programme syllabus

Master's Programme, Production Engineering and Management, 120 credits
Masterprogram, industriell produktion

Valid for students admitted to the education from autumn 12 (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, synthesize 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 judge 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.

Selection into the programme is based on an evaluation of the following criteria: University/higher education institution, grades, courses relevant to the programme, and work experience.

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 have 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 http://intra.kth.se/regelverk/. 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 (Two Years), 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 2012

General courses

Year 1

Mandatory courses (28.5 credits)

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course name</th>
<th>Credits</th>
<th>Edu. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>MG2028</td>
<td>CAD and Other IT Tools in Industrial Processes</td>
<td>6.0</td>
<td>Second cycle</td>
</tr>
<tr>
<td></td>
<td>MG2028 or MG2128 must be taken. If you don't have knowledge in CAD corresponding MG1028 you must take MG2128</td>
<td></td>
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</tr>
<tr>
<td>MG2029</td>
<td>Production Engineering - Planning and Control</td>
<td>6.0</td>
<td>Second cycle</td>
</tr>
<tr>
<td>MG2128</td>
<td>CAD and Other IT Tools in Industrial Processes, Extended Course</td>
<td>7.5</td>
<td>Second cycle</td>
</tr>
<tr>
<td></td>
<td>MG2028 or MG2128 must be taken. If you don't have knowledge in CAD corresponding MG1028 you must take MG2128</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>
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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>
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</thead>
<tbody>
<tr>
<td>ME1003</td>
<td>Industrial Management, Basic Course</td>
<td>6.0</td>
<td>First cycle</td>
</tr>
<tr>
<td></td>
<td>Profile Production engineering and management. One of ME1003, MG1007 and MG2039 must be taken.</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>MG1007</td>
<td>Contemporary Maintenance Techniques</td>
<td>6.0</td>
<td>First cycle</td>
</tr>
<tr>
<td></td>
<td>Profile Production engineering and management. One of ME1003, MG1007 and MG2039 must be taken.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MG2020</td>
<td>Modularisation of Products</td>
<td>6.0</td>
<td>Second cycle</td>
</tr>
<tr>
<td>MG2022</td>
<td>Advanced CAD Modelling and Rapid Prototyping, Project Course</td>
<td>6.0</td>
<td>Second cycle</td>
</tr>
<tr>
<td>MG2032</td>
<td>Automation Technology, Advanced Course 1</td>
<td>6.0</td>
<td>Second cycle</td>
</tr>
<tr>
<td></td>
<td>Profile Production development</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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<tr>
<td>MG2033</td>
<td>Quality Control</td>
<td>6.0</td>
<td>Second cycle</td>
</tr>
<tr>
<td></td>
<td>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.</td>
<td></td>
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<tr>
<td>MG2035</td>
<td>Product Data Management/Product Lifecycle Management</td>
<td>6.0</td>
<td>Second cycle</td>
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<tr>
<td></td>
<td>Profile Industrial IT-systems</td>
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<tr>
<td>MG2036</td>
<td>Computer Aided Manufacturing - CAM</td>
<td>6.0</td>
<td>Second cycle</td>
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<td></td>
<td>Profile Industrial IT-systems</td>
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</tr>
<tr>
<td>MG2039</td>
<td>Production Systems- Change and Improvement</td>
<td>6.0</td>
<td>Second cycle</td>
</tr>
<tr>
<td></td>
<td>Profile Production engineering and management. One of ME1003, MG1007 and MG2039 must be taken.</td>
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</tr>
<tr>
<td>MG2103</td>
<td>Industrial Process Engineering</td>
<td>6.0</td>
<td>Second cycle</td>
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<td>Profile Production engineering and management.</td>
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<tr>
<td>MG2104</td>
<td>Manufacturing Technology and Planning</td>
<td>7.5</td>
<td>Second cycle</td>
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<td></td>
<td>Profile Production engineering and management.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MG2202</td>
<td>Quality Control</td>
<td>9.0</td>
<td>Second cycle</td>
</tr>
<tr>
<td></td>
<td>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.</td>
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</tbody>
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**Supplementary information**

The Programme have 3 profiles:

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

**Year 2**

**Mandatory courses (43.5 credits)**

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course name</th>
<th>Credits</th>
<th>Edu. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>AK2036</td>
<td>Theory and Methodology of Science with Applications (Natural and Technological Science)</td>
<td>7.5</td>
<td>Second cycle</td>
</tr>
<tr>
<td>MG2027</td>
<td>Production Engineering - Project Course</td>
<td>6.0</td>
<td>Second cycle</td>
</tr>
<tr>
<td>MG202X</td>
<td>Degree Project in Production Engineering, Second Cycle</td>
<td>30.0</td>
<td>Second cycle</td>
</tr>
<tr>
<td></td>
<td><em>MG202X or MG203X must be taken</em></td>
<td></td>
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</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>ME1003</td>
<td>Industrial Management, Basic Course</td>
<td>6.0</td>
<td>First cycle</td>
</tr>
<tr>
<td></td>
<td>Profile Production engineering and management: One of the following course packages must be chosen, ME1003 and ME2053 or MG1007 and MG2007; Should be taken during year 1</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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</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>Profile Production engineering and management: One of the following course packages must be chosen, ME1003 and ME2053 or MG1007 and MG2007; Profile: Production development</em></td>
<td></td>
<td></td>
</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 following course packages must be chosen, ME1003 and ME2053 or MG1007 and MG2007</em></td>
<td></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>
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<td><em>Profile Production engineering and management: One of the following course packages must be chosen, ME1003 and ME2053 or MG1007 and MG2007</em></td>
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<tr>
<td>MG2009</td>
<td>Advanced Manufacturing Technology</td>
<td>6.0</td>
<td>Second cycle</td>
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<td><em>Profile Production development. MG2009 or MG2109 must be taken.</em></td>
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<td>MG2026</td>
<td>Integration of Industrial IT Systems</td>
<td>6.0</td>
<td>Second cycle</td>
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<td><em>Profile: Industriella IT-system</em></td>
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<td>MG2038</td>
<td>Digital Factories</td>
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<td>Second cycle</td>
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<td><em>Profile: Industriella IT-system</em></td>
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<tr>
<td>MG2109</td>
<td>Advanced Manufacturing Technology, Extended Course</td>
<td>9.0</td>
<td>Second cycle</td>
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<td><em>Profile Production development. MG2009 or MG2109 must be taken. Profile Production engineering and management: One of the following courses must be taken; MG2109, MG2110 or MG2113</em></td>
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<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 following courses must be taken; MG2109, MG2110 or MG2113</em></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Supplementary information**

The Programme have 3 profiles:

- Industrial IT-systems
- Production development
- Production engineering and management
Appendix 2: Specialisations

Master's Programme, Production Engineering and Management, 120 credits (TPRMM), Programme syllabus for studies starting in autumn 2012

This programme has no specialisations.