Programme syllabus

Master's Programme, Architectural Engineering, 120 credits
Masterprogram, huskonstruktion
120.0 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

Valid for students admitted to the education from HT11 (HT - Autumn term; VT - Spring term).

The goal of the Architectural Engineering programme is to provide the industry with competitive professionals.

Knowledge and understanding

The graduates will possess in-depth knowledge in the fields of Structural Engineering, Building Technology, Building Materials Engineering and Building Services Engineering and will obtain a holistic view of the house as a technical systems.

Skills and abilities

The student will be prepared for the professional practice of a consultant, as an entrepreneur or in property management. A graduate of the programme will exhibit:

1. strong ability to develop and design buildings with regard to human conditions and needs and society's objectives for economically, socially and ecologically sustainable development.

2. strong ability to communicate with different audiences in English and in Swedish, orally and in writing. This includes the ability to discuss and to promote the results and findings that are presented. This is achieved through oral and written presentations in English and Swedish, throughout the education.

3. the ability to put theory in practical context, independently and as a part of a group.

4. the ability to analyze and develop new technologies and methods within the field of Architectural Engineering.

In addition, the student will be given the opportunity to obtain professional skills in leadership, project management and communication required for a job in a managerial capacity.

Ability to make judgements and adopt a standpoint

The students will acquire a holistic perspective that enables him or her to take into account the technical, environmental, economic, social and aesthetic aspects of building construction activities.

The graduates of the program will be aware of the effects of technology on society, with regard to human conditions and needs, bearing in mind sustainable development of society.

Furthermore the students will develop critical and independent thinking.
Extent and content of the programme

This is a two year programme with 120 credits. The courses are at an advanced level. Courses are given in English, except during a transitional period of two years, in which the programme is taught in Swedish.

Eligibility and selection

The main target group is students admitted to the Civil Engineering and Urban Management at KTH who have chosen to specialize in Architectural Engineering. Other target groups are students with a degree in engineering from an institute of higher education or a BSc in the area of architectural engineering. Foreign students with a corresponding educational background who are interested in ecologically sustainable development, Swedish energy efficient construction and the Swedish language and culture also form an interesting target group.

The candidates are required to hold a Bachelor’s degree in a related field of Civil Engineering. To be eligible the candidates are required to have taken the following courses: English B and undergraduate courses in mathematics (including multivariate analysis, trigonometry and functions), programming, numerical methods, CAD, Geotechnology, Building Mechanics, Structural Mechanics, Building Physics, Building Technology and Building Services Engineering.

Selection

If the number of applicants exceeds the number of available places, a selection will be made. The selection procedure is based on university, grades and an overall evaluation of courses completed in the primary area of education.

Implementation of the education

Structure of the education

The academic year is divided into four periods. Each period is about seven weeks with a minimum of 33 study days. Each study period is followed by an exam period, including two days without any scheduled activities and at least five exam days.

In addition there are three periods of re-examination, after Christmas, after May and immediately before the first study period of the academic year. The number of examinations in a course is limited to two per year. The academic school year is 40 weeks. When necessary, teaching activities may be placed outside the school year. The teaching is primarily conducted in the form of lectures, exercises, projects, seminars and labs. The individual student has a significant responsibility in the learning process. To independently search for knowledge and information, and to analyze and evaluate it critically, is an important part of the education, as is the presentation of the results both orally and in writing.

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.

The courses at KTH use a scale of seven grades, corresponding to learning outcomes, in the range from A to F, on undergraduate and graduate levels. A to E are passing grades, A being the highest.

At special circumstances the grades of pass (P) and Fail (F) are used.
Recognition of previous academic studies
It is possible to make a transfer of academic credits even though the applicant is a graduate of a academic programme that is not taught at KTH or when the course outline does not fully correlate with that of KTH. Credit transfers that have been decided at another university in Sweden are normally accepted by KTH.

Studies abroad
Applications for exchange studies are administered by the offices of the schools of KTH and are to be addressed to the appropriate school board. The application must be in writing and must be submitted by January the 15th of the school year prior to the exchange studies. The eligibility for student exchange will be determined by the school boards. Eligibility rules include the requirement of an enrollment at KTH, with two years of finished studies on pace. Exchange studies can be credited in the program at KTH. In addition, students must have a sufficient knowledge of the language of instruction at the host university, in order to cope with the studies.

Degree project
The Masters thesis is a course of 30 credits, which means that the thesis work is equivalent to 20 weeks of full time studies. The thesis may not include other courses (courses with its own course number). The thesis may include elements such as seminars, information retrieval, auscultations or other elements, as an examiner or supervisor deems appropriate.
Generally, a major part of their studies, must be completed before the thesis work may commence. At least 60 credits must be completed, including 30 credits of specialization at the advanced level in the main field. The thesis should be rated on a scale A to F, based on the KTH common assessment criteria and criteria.

Degree
Master of Science with a Major in the Built Environment and Specialized in Architectural Engineering.

Appendix 1 - Course list
Appendix 2 - Programme syllabus descriptions
Appendix 1: Course list

Master's Programme, Architectural Engineering, 120 credits (THUSM), Programme syllabus for studies starting in autumn 2011

General courses

Year 1

Mandatory courses (52.5 credits)

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course name</th>
<th>Credits</th>
<th>Edu. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>AF2001</td>
<td>Structural Engineering, Advanced Course</td>
<td>7.5</td>
<td>Second cycle</td>
</tr>
<tr>
<td>AF2101</td>
<td>Concrete Structures</td>
<td>7.5</td>
<td>Second cycle</td>
</tr>
<tr>
<td>AF2213</td>
<td>Steel and Timber Structures</td>
<td>7.5</td>
<td>Second cycle</td>
</tr>
<tr>
<td>AF2301</td>
<td>Building Materials, Advanced Course</td>
<td>7.5</td>
<td>Second cycle</td>
</tr>
<tr>
<td>AF2401</td>
<td>Building Technology, Advanced Course</td>
<td>7.5</td>
<td>Second cycle</td>
</tr>
<tr>
<td>AF2402</td>
<td>Acoustics and Fire</td>
<td>7.5</td>
<td>Second cycle</td>
</tr>
<tr>
<td>AF2502</td>
<td>Building Services Engineering, Advanced Course</td>
<td>7.5</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>AI1801</td>
<td>Construction Project Management</td>
<td>7.5</td>
<td>First cycle</td>
</tr>
</tbody>
</table>

Year 2

Mandatory courses (7.5 credits)

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course name</th>
<th>Credits</th>
<th>Edu. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>AF2023</td>
<td>Theory and Methodology of Science and Risk and Safety in Building Sciences</td>
<td>7.5</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>AE2501</td>
<td>Environmental Impact Assessment</td>
<td>7.5</td>
<td>Second cycle</td>
</tr>
<tr>
<td>AF2025</td>
<td>Architectural Engineering Project</td>
<td>7.5</td>
<td>Second cycle</td>
</tr>
<tr>
<td>AF212X</td>
<td>Degree Project in Concrete Structures, Second Cycle</td>
<td>30.0</td>
<td>Second cycle</td>
</tr>
<tr>
<td>AF222X</td>
<td>Degree Project in Structural Design and Bridges, Second Cycle</td>
<td>30.0</td>
<td>Second cycle</td>
</tr>
<tr>
<td>AF232X</td>
<td>Degree Project in Building Materials, Second Cycle</td>
<td>30.0</td>
<td>Second cycle</td>
</tr>
<tr>
<td>AF2403</td>
<td>Building Damages</td>
<td>7.5</td>
<td>Second cycle</td>
</tr>
<tr>
<td>AF242X</td>
<td>Degree Project in Building Technology, Second Cycle</td>
<td>30.0</td>
<td>Second cycle</td>
</tr>
<tr>
<td>AF2507</td>
<td>Sustainable Buildings - Concept, Design, Construction and Operation</td>
<td>7.5</td>
<td>Second cycle</td>
</tr>
<tr>
<td>AF2509</td>
<td>Indoor Environmental Quality - Occupant Satisfaction and Building Performance</td>
<td>7.5</td>
<td>Second cycle</td>
</tr>
<tr>
<td>AF2510</td>
<td>Energy and Indoor Climate Modelling in Buildings</td>
<td>7.5</td>
<td>Second cycle</td>
</tr>
<tr>
<td>AF252X</td>
<td>Degree Project in Building Services Engineering, Second Cycle</td>
<td>30.0</td>
<td>Second cycle</td>
</tr>
<tr>
<td>AF2609</td>
<td>Foundation Engineering</td>
<td>7.5</td>
<td>Second cycle</td>
</tr>
<tr>
<td>AF262X</td>
<td>Degree Project in Soil and Rock Mechanics, Second Cycle</td>
<td>30.0</td>
<td>Second cycle</td>
</tr>
<tr>
<td>AF282X</td>
<td>Degree Project in Steel Structures, Second Cycle</td>
<td>30.0</td>
<td>Second cycle</td>
</tr>
<tr>
<td>AG2806</td>
<td>Environmental Aspects of the Built Environment</td>
<td>7.5</td>
<td>Second cycle</td>
</tr>
</tbody>
</table>

**Year 4**
Appendix 2: Specialisations

Master's Programme, Architectural Engineering, 120 credits (THUSM), Programme syllabus for studies starting in autumn 2011

This programme has no specialisations.