Programme syllabus

Degree Progr. in Construction Management
Högskoleutbildning i byggproduktion
120.0 credits

Valid for students admitted to the education from autumn 17 (HT - Autumn term; VT - Spring term).

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

Programme objectives

This information applies to first year students in the 2017-2018 academic year.

Changes to the programme contents may be made for year 2.

Always check KTH’s website for the most recent programme syllabus.

The construction management degree programme includes preparing students to work in the production stage of construction projects. It has a theoretical-practical profile, and after graduation students should be able to work with management, accounting, and planning in the production stage.

Knowledge and understanding

Upon completing the programme, students should:

- Demonstrate basic knowledge and skills in building physics, structural engineering, structural mechanics, and mechanical stress theory.
- Have basic technical skills regarding the construction process.
- Have acquired specialised training in the field of building technology and structures/infrastructure.
- Possess relevant knowledge in construction supervision, construction management, and leadership for use in their professional roles.

Skills and abilities

Upon completing the programme, students should:

- Have professional skills that were integrated into the programme, such as the ability to work in and lead a group, and oral and written communication skills in Swedish.
• Have practical experience from companies with worksites in the construction, installation, and civil engineering industries.

**Ability to make judgements and adopt a standpoint**

*Upon completing the programme, students should:*

Be aware of how construction affects society, taking into account human circumstances and needs, and societal objectives regarding resource management, the economy, and the environment.

**Extent and content of the programme**

The program of 120 credits is located on the first level with a fall start. Nominal study period is 2 years and the language of instruction is in Swedish.

**Eligibility and selection**

To be eligible for KTH courses at undergraduate/graduate level requires basic eligibility, according to the Higher Education Ordinance.

In addition the following specific entrance requirements for admission to the program: Mathematics C, Social Studies A, Natural Science B or Physics A, and Chemistry A (but without the requirement that Biology A is included in the compensatory requirement for Natural Science B). A Pass or E grade is the minimum requirement for each subject.

One-third of programme applicants will be selected based on their grades. One-fifth of qualified applicants will be selected based on practical vocational experience in the construction or civil engineering fields. Participation in this selection process requires a minimum of two years’ full-time professional experience or an equivalent amount of at least half-time experience. A maximum of three years full-time or an equivalent amount of at least half-time can be counted in the applicant’s favour. The remaining will be selected based on their Swedish Scholastic Aptitude Test scores.

**Implementation of the education**

**Structure of the education**

The academic year comprises 40 weeks and 60 credits and is divided into two terms: autumn and spring. Each term comprises two study periods.

For information on the academic year’s scope, exam periods, and exam make-up periods, see KTH’s website.

The programme includes theoretical components in building physics, structural engineering, construction, and construction management in which instruction takes the form of lectures, exercises, seminars, and projects. Much of the project work is done at company worksites in the construction and civil engineering sectors.
During the first and third terms, all instruction occurs at the school, while the theoretical studies are combined with worksite projects for a continuous period of five weeks in terms two and four.

For a detailed breakdown of the academic year, see the Student website.

First year

During the first term, you will study theoretical courses at the school, where one of the first courses is Technical Work, Methods, and Tools. It will give you an overview of the structural engineering field, insight into what it means to work as a production foreman, and knowledge of the work practices of foremen. As a foreman or site manager, you must be able to read and interpret various construction drawings and understand the relationship between a building’s components, systems, and functions. You will acquire these skills in the Technical Work, Methods, and Tools course and the Building Technology course, in which you will also learn how to use drawing programmes in CAD.

In the Building Process course, you will learn how the building process works and how it is organised, as well as the role and work of construction companies in the process.

The first term also includes a course in mathematics that provides algebra, trigonometry, and other skills. Besides theoretical courses, the second term of the first year also (to include) includes company worksite projects.

In the Construction Management course, which is partially conducted at a company worksite, you will learn which management methods a construction company has for (a) building production (and) you will learn how to prepare an estimate for a small construction project, which tools are used for planning and production, how a procurement is conducted, and what demands society makes in this context. You (must also keep track of) will also learn how to implement the laws and regulations that apply to the field (and what) applies in a dispute.

The Business Economics and Quality Systems course provides you with an understanding of business finance, logistic and quality management systems. Business concepts, corporate culture, marketing, and accounting are some other concepts that are included. You will also get to apply that knowledge at company worksites. The Statics and Strength of Materials course helps you understand the relationship between external and internal forces’ effect on materials. You will also learn how to analyse the effect of different loads on beams.

In the Building Physics course you will study the properties of various construction materials and how heat, humidity, and air affect them. You will calculate heat and moisture transfer in buildings and their energy needs.

Second year

During your second year, you will expand your knowledge in the construction field, including learning more about construction management and production. You will also learn the basics of leadership. As in the first year, you will attend theoretical courses and work on company worksite projects.
In the second-year Construction Management course, you will learn more about business management and risk assessment. You will also study environmental and work sciences as well as legislation pertaining to these subjects. You will also be able to plan for the prevention of occupational injuries and participate actively in environmental efforts at your future workplace.

In the Surveying course, you will learn how to use measurement and staking methods and how to use the most common geodetic measuring instruments on a worksite.

A building also contains many technical installations, and many energy issues are associated with them. This subject matter is included in the Project Building and Installations course, in which you will learn various production methods for the best logistics and industrial construction. The course also includes leadership training, which prepares you for your future profession in production as a foreman, site manager, or a project planner in an office. The course combines labour management, conflict resolution, and discussions on topics like ethics and values.

Concrete is an important construction material. The Concrete Structures course provides you with knowledge about technology and regulations, and you will learn to design simple concrete structures.

In the Structural Design course, you will learn to do simple calculations for wood and steel structures. You will also study architecture for project planners.

You will also attend a course in civil engineering. The course will teach you about Sweden’s rock and soil. You will learn about the properties and functions of various soil materials in relation to foundation work on structures and buildings, and about earthworks, road-building, water supply and sewer systems, and the operation and maintenance of such structures.

At the end of the programme, you will immerse yourself in building technology and civil engineering. Building Technology will provide you with specialised knowledge in integrating and coordinating real estate planning installations in the production stage. In Civil Engineering, you will learn more about road, bridge, and tunnel construction, foundation engineering, and public water supplies and wastewater management. These two courses are highly related to the business sector and contain interesting lectures and project work in the area of production. Feedback is given regularly to the ongoing building and engineering projects through several field trips each week.

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.

Information regarding the scale found in the curriculum.

Conditions for participation in the programme
**Semester Registration /Course Registration**

A prerequisite for participation in studies at KTH is to the student for each semester doing a semester registration and course registration.

Registration is done under the personal menu on the KTH:s web page

Course registration is done by all students on the program at www.antagning.se

**Conditions for advancement**

At least 37.5 credits from the first year must be completed before beginning second year studies. For students who do not meet this requirement, individual study plans will be drawn up in consultation with a study adviser.

**Recognition of previous academic studies**

Students are able to apply to receive credit for the results of the course/courses at another college/university within the country or abroad.

For more information please refer to KTH's regulations in www.kth.se and program's student guidance counselling.

**Studies abroad**

There is currently no study abroad programme for students enrolled in KTH’s two-year programs.

**Degree project**

The programme includes a degree project worth 7.5 credits. This is equivalent to about five weeks of full-time studies.

Information regarding the grading scale on the degree project refer to the syllabus.

See also: Guidelines for Degree Project, School of Architecture and the Built Environment.

**Degree**

**Conditions for 120-credit degree**

Receiving a University Diploma in Construction Management requires passing grades in all courses included in the student’s study plan. The study plan consists of compulsory courses comprising at least 120 credits.

The degree is called: Higher Education Diploma with a major in Technology.

The application for degree is done in the personal menu on KTH:s webb page.
for more information see KTH’s regulations.

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

Degree Progr. in Construction Management (TBYPH), Programme syllabus for studies starting in autumn 2017

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>AF1717</td>
<td>Technical Work, Methods and Tools</td>
<td>7.5 hp</td>
<td>First cycle</td>
</tr>
<tr>
<td>AF1742</td>
<td>Business Economics and Quality Systems</td>
<td>7.5 hp</td>
<td>First cycle</td>
</tr>
<tr>
<td>HF1700</td>
<td>Mathematics</td>
<td>7.5 hp</td>
<td>First cycle</td>
</tr>
<tr>
<td>HS1721</td>
<td>Building Technology</td>
<td>7.5 hp</td>
<td>First cycle</td>
</tr>
<tr>
<td>HS1722</td>
<td>Statics and Strength of Materials</td>
<td>7.5 hp</td>
<td>First cycle</td>
</tr>
<tr>
<td>HS1730</td>
<td>Building Physics</td>
<td>7.5 hp</td>
<td>First cycle</td>
</tr>
<tr>
<td>HS1731</td>
<td>The Building Process</td>
<td>7.5 hp</td>
<td>First cycle</td>
</tr>
<tr>
<td>HS1735</td>
<td>Project Building and Installations</td>
<td>7.5 hp</td>
<td>First cycle</td>
</tr>
</tbody>
</table>

Optional courses

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course name</th>
<th>Credits</th>
<th>Edu. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>HF0009</td>
<td>Introduction to Mathematics</td>
<td>1.5 fup</td>
<td>Pre-university level</td>
</tr>
<tr>
<td>HF0017</td>
<td>Introduction to Computer Studies</td>
<td>1.5 fup</td>
<td>Pre-university level</td>
</tr>
</tbody>
</table>

Year 2

Mandatory courses (37.5 Credits)

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course name</th>
<th>Credits</th>
<th>Edu. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>AF1730</td>
<td>Building Information Modeling</td>
<td>7.5 hp</td>
<td>First cycle</td>
</tr>
<tr>
<td>AF1736</td>
<td>Surveying and Civil Engineering B</td>
<td>7.5 hp</td>
<td>First cycle</td>
</tr>
<tr>
<td>Course code</td>
<td>Course name</td>
<td>Credits</td>
<td>Edu. level</td>
</tr>
<tr>
<td>-------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>---------</td>
<td>------------</td>
</tr>
<tr>
<td>HS1015</td>
<td><strong>Construction Management</strong></td>
<td>7.5 hp</td>
<td>First cycle</td>
</tr>
<tr>
<td>HS1725</td>
<td><strong>Building Production and Leadership</strong></td>
<td>7.5 hp</td>
<td>First cycle</td>
</tr>
<tr>
<td>HS1733</td>
<td><strong>Concrete Structures</strong></td>
<td>7.5 hp</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>AF108X</td>
<td><strong>Degree Project in Building Services Engineering - Construction Management, First Cycle</strong></td>
<td>7.5 hp</td>
<td>First cycle</td>
</tr>
<tr>
<td>AF109X</td>
<td><strong>Degree Project in Civil Engineering - Construction Management, First Cycle</strong></td>
<td>7.5 hp</td>
<td>First cycle</td>
</tr>
<tr>
<td>AF1718</td>
<td><strong>Building Services Engineering 1 within Construction and Civil Engineering</strong></td>
<td>7.5 hp</td>
<td>First cycle</td>
</tr>
<tr>
<td>AF1719</td>
<td><strong>Building Services Engineering 2 within Construction and Civil Engineering</strong></td>
<td>7.5 hp</td>
<td>First cycle</td>
</tr>
<tr>
<td>AF1724</td>
<td><strong>Civil Engineering 1</strong></td>
<td>7.5 hp</td>
<td>First cycle</td>
</tr>
<tr>
<td>AF1725</td>
<td><strong>Civil Engineering 2</strong></td>
<td>7.5 hp</td>
<td>First cycle</td>
</tr>
</tbody>
</table>
Appendix 2: Specialisations

Degree Progr. in Construction Management (TBYPH), Programme syllabus for studies starting in autumn 2017

This programme has no specialisations.