



Programme syllabus

Degree Progr. in Construction Management
Högskoleutbildning i byggproduktion
120.0 credits

Valid for students admitted to the education from autumn 18 (HT - Autumn term; VT - Spring term).

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

Programme objectives

This information is for students who have started on their studies in the 2018-2019 academic year. The content of year 2 of the course may be subject to change. Keep checking the KTH website for information about the most recently set course plan.

The course for the degree examination, valued 120 credits, specializing in Construction Management provides training in preparation for working as e.g. a production engineer with companies active in the production phase in the housing construction, civil engineering and installation sectors. It has a mixed theory-practical profile, and after having fulfilled the course, the students will be able to work in production, e.g. in labour management, cost estimation and planning.

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, which corresponds to 60 credits, comprises 40 weeks and is divided into two semesters: the autumn and spring semesters. Each semester comprises two study periods.

For information about the organization of the academic year, and the examination and resit periods, please see the KTH website.

The course includes theoretical components in building physics, building technology, construction and construction management, with tuition in the form of lectures, exercises, seminars and project work. A significant part of the project is in the form of internship in the construction and civil engineering sectors.

During the first and third study periods, all education is provided at the college, while the theoretical studies are mixed with company-based projects over a continuous period of 5 weeks in study period two and four.

For a detailed description of the academic year, please see Studentwebben

Year 1

The first study period will consist primarily of theoretical courses in the land use planning process, building and civil engineering construction technology. These courses will provide the student with a general overview of the building technology sector, an insight into what it means to be a supervisor in production and knowledge of the supervisor's working methods. As a supervisor or site manager, you must be able to read and interpret various construction drawings and understand the connection between a building's various components, systems and functions. You must be familiar with building technology for the structures and construction techniques of fairly small and medium-sized buildings. The course in the first term will also teach you how to draw using CAD design software, etc.

In the course Building Process, you will learn how the building process functions and how it is organised, to identify the stakeholders and authorities involved, and to understand the role and work of the construction company in the process. You will also obtain information about relevant legislation in the building process.

The first study period also includes a course in mathematics, which will provide knowledge of algebra, trigonometry etc. As well as theoretical courses, the second study period in year 1 also contains work-experience projects.

In the second study period there is a course in Building Finance and Quality. Here you will gain an understanding of the company's finances, logistics and quality management system. Business concepts, corporate culture, marketing and accounts are also addressed. You will also be given an opportunity to apply your knowledge in an industrial environment. The course in structural mechanics will help you to understand the connection between the influence of external and internal forces on materials. It will also teach you to analyse the effect of various loads on beams. The course provides a basis for the subject of building science for concrete, steel and wood.

The course in Building Physics and Materials, provides knowledge about the properties of various building materials and how these are affected by heat, moisture and air. Building Physics also includes an understanding of the acoustic insulation and fire properties of structural components. You will perform calculations of heat and moisture, and heat transfer, as well as energy requirements for buildings. You will also encounter the term Sustainable Building in the various course components.

The course Project house and installations will feature installation theory for Ventilation, Heat, Water and Sanitation, and Electricity, with field trips on which you will have an opportunity to familiarise yourself with the installations in a medium-size office building by comparing drawings and documentation with the actual situation. The course also includes a project assignment using computer-assisted design.

In the middle of study period 2 there is a 5-week practical internship in which project assignments linked to preceding courses will also be completed.

Year 2

The course in Construction Management and Leadership prepares you for a future career in production as a supervisor, site manager or office-based designer. You will learn the production methods required to produce the best logistics and industrial building. As well as supervision and conflict resolution, the course also covers discussions on topics relating to ethics and issues relating to values.

In the Surveying course you will learn methods for surveying and setting out, as well as how to use the most common geodetic measuring instruments that may be encountered at a worksite.

The course in Production and Leadership will provide you with knowledge about the various elements of logistics that are involved in building production, from foundation work to completed construction work. Considerable emphasis is also placed on the topics of leadership, safety in the workplace and work science-environment.

Concrete is an important construction material. The course in Concrete Construction will provide you with knowledge about technology and stipulations when selecting and casting concrete, as well as the strength and other properties of concrete. You will also practice to design simple concrete structures.

In the Construction Management course, part of which consists of an internship, you will learn what management methods a contracting company has for building production. You will learn how to draw up a cost estimate for a fairly small construction project, what aids are used in the design and production process, how a tendering process is implemented and what social requirements exist. You will also learn how to apply the laws and provisions in this area and how disputes are handled.

Before the final semester in the course, you will choose one of two “tracks”: Civil Engineering or Installation Technology.

Half-way through the final semester (study period 4) there is a 5-week practical industrial placement during which project assignments linked to preceding courses will also be completed.

Regardless of what “track” you choose, you will be studying the BIM (Building Information Modelling) course, where you will get to learn how to use several CAD software packages and complete a number of fairly simple design tasks for buildings, and also perform fairly simple cost estimates for timber and steel structures. You will learn about the importance of the concept of BIM with coordination between designer, architect and contractor etc. Project assignment completed using Revit CAD software, etc.

The Civil Engineering track includes the courses in Building Technology 1 and 2, as well as a thesis in civil engineering. You will acquire knowledge of the types of soil and rock in Sweden. You will learn about the properties and behaviour of various soil materials in connection with foundation work for buildings and installations, as well as earthworks, the construction of road structures, water and sewage works and the operation and maintenance of such installations.

You will also learn more about road, bridge and tunnel construction, foundation work technology as well as public water supply and sewage management. Both of these courses have strong links to the industry and they include lectures and project assignments that are of interest in terms of production. Regular feedback is provided for building and construction works via a number of study visits.

The program ends with a thesis entailing an in-depth study/report in civil engineering. The thesis is carried out with guidance provided by industrial and academic supervisors.

The track Installation Technology includes the course building technology 1 and 2, as well as a thesis in installation technology. In this track, you will acquire knowledge about installations that are present in medium-sized buildings and infrastructure facilities. You will also acquire knowledge about the principles of planning and design, and how installations are realized in production. The emphasis in this track is on ventilation, HVS (Heat, Ventilation, Sanitation) and electricity. Basic knowledge of indoor climate and control and adjustment technology is also included.

The program ends with a thesis entailing an in-depth study/report in installation technology-coordination in production. The thesis is carried out with guidance provided by industrial and academic supervisors.

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

Participation requires admission to courses within the programme and course registration.

Course registration is done via the personal menu at www.kth.se

For students starting education from the autumn semester 2018, previous promotion requirements have been replaced with special admission requirements to course. Admission requirements are specified in the course syllabus.

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. The project work may start when special admission requirements for the course are met.

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 2018

Programme syllabus

Established Programme syllabus as PDF:

- [Valid for studies starting in autumn 2018](#)

General courses

Year 1

Mandatory courses (60.0 Credits)

Course code	Course name	Credits	Edu. level
AF1722	The Building Process	5.0 hp	First cycle
AF1731	Building Technology 1, Constructional Engineering and Design, Cad 1	7.5 hp	First cycle
AF1732	Building Technology 2, large buildings, materials, Cad 2, Civil Engineering A	10.0 hp	First cycle
AF1742	Business Economics and Quality Systems	7.5 hp	First cycle
HF1700	Mathematics	7.5 hp	First cycle
HS1722	Statics and Strength of Materials	7.5 hp	First cycle
HS1730	Building Physics	7.5 hp	First cycle
HS1735	Project Building and Installations	7.5 hp	First cycle

Optional courses

Course code	Course name	Credits	Edu. level
HF1703	Introductory Mathematics	1.5 hp	First cycle

Year 2

Mandatory courses (37.5 Credits)

Course code	Course name	Credits	Edu. level
AF1730	Building Information Modeling	7.5 hp	First cycle
AF1736	Surveying and Civil Engineering B	7.5 hp	First cycle
HS1015	Construction Management	7.5 hp	First cycle
HS1725	Building Production and Leadership	7.5 hp	First cycle
HS1733	Concrete Structures	7.5 hp	First cycle

Conditionally elective courses

Course code	Course name	Credits	Edu. level
AF108X	Degree Project in Building Services Engineering - Construction Management, First Cycle	7.5 hp	First cycle
AF109X	Degree Project in Civil Engineering - Construction Management, First Cycle	7.5 hp	First cycle
AF1718	Building Services Engineering 1 within Construction and Civil Engineering	7.5 hp	First cycle
AF1719	Building Services Engineering 2 within Construction and Civil Engineering	7.5 hp	First cycle
AF1724	Civil Engineering 1	7.5 hp	First cycle
AF1725	Civil Engineering 2	7.5 hp	First cycle



Appendix 2: Specialisations

Degree Progr. in Construction Management (TBYPH), Programme syllabus for studies starting in autumn 2018

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Established Programme syllabus as PDF:

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This programme has no specialisations.