



Programme syllabus

Master's Programme, Civil and Architectural Engineering, 120 credits
Masterprogram, husbyggnads- och anläggningsteknik
120.0 credits

Valid for students admitted to the education from autumn 20 (HT - Autumn term; VT - Spring term).

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

Programme objectives

The information is valid for students who started the programme academic year 2020/2021. Later decisions may affect year 2 in the programme. Please look at www.kth.se/studies?l=en_UK for further information.

Knowledge and understanding

The graduates will possess advanced knowledge in the field of Structural Engineering as well as within the subjects of Civil or Architectural Engineering. The students will be able to implement this knowledge with a holistic view of buildings and infrastructure as advanced technical systems.

Skills and abilities

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

- Strong ability to develop and design buildings and infrastructure with regard to human conditions and needs, and society's objectives for economically, socially and ecologically sustainable development.
- 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.
- The ability to put theory in practical context, independently and as a part of a group.
- The ability to analyze and develop new technologies and methods within the subject matter of the programme.

Ability to make judgements and adopt a standpoint

The programme is designed to meet the following goals.

- 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 a sustainable development of society.
- The students will develop critical and independent thinking.

Extent and content of the programme

This is a two year programme with 120 ECTS credits.

The courses are at advanced level. The curriculum contains compulsory courses and provides the possibility of specialization in Civil Engineering and Architectural Engineering.

Courses are given in English.

Eligibility and selection

The general admission requirement for masters programmes at KTH is a completed Bachelor's degree, equivalent to a Swedish Bachelor's degree (180 ECTS credits), or equivalent academic qualifications from an internationally recognised university. In addition, students have to meet following specific requirements:

The candidates are required to hold a Bachelor's degree in a field related to Civil Engineering. To be eligible the candidates are required to have finished a course corresponding to English B and to have 20 university credits in mathematics (including linear algebra, multivariate analysis and statistics). Fundamental knowledge in numerical methods and/or programming, 6 credits, is required. Fundamental knowledge in Building Mechanics, 7.5 credits, Structural Mechanics, 7.5 credits, Geology and Geotechnology, 6 credits, Building Materials, 7.5 credits and Building Physics, 7.5 credits (heat- and moisture transport), is required.

Fluid Mechanics and Hydrology are prerequisites to certain courses of the curriculum.

For further information see KTH:s admission regulations in the KTH regulatory framework, www.kth.se

Selection

The selection process is based on the following selection criteria: University, previous studies (for instance GPA, grades in specific subjects and English). The evaluation scale is 1-75.

Specific documents for the master's programme in Civil and Architectural Engineering is:

- Autobiographical statement (including motivation letter)

Implementation of the education

Structure of the education

The academic year is 40 weeks and is divided into two semesters, autumn and spring. Each semester consists of two study periods.

For information on the extent of the school year, the exam and re examination cited on KTH.se

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

Recognition of previous academic studies

Students are able to apply for credit transfer for courses taken at another university, in Sweden or abroad.

For more information please refer to KTH's regulations on KTH.se and the Education office.

Studies abroad

Students have the opportunity to spend one semester at one of KTH's partner universities abroad.

For more information and recommendation on the appropriate semester for exchange studies refer to the International coordinators.

Degree project

The degree project is the final part of the education. The project work may begin when special admission requirements for the course are fulfilled.

The Master's degree project is a course of 30 ECTS credits, which means that the degree project work is equivalent to 20 weeks of full time studies. The degree project may include seminars, information retrieval, auscultations or other elements, as the examiner or supervisor deems appropriate.

If a student intends to undertake a degree project in another subject area, it must be approved by the Director of undergraduate and Master studies.

The degree project is graded pass (P) or fail (F).

Degree

Titel: Master of Science with a Major in the Built Environment specialized in Civil and Architectural Engineering, 120 credits

The degree of Master in the programme described above is obtained after completion of courses comprising 120 ECTS of which

- at least 60 ECTS credits at advanced level including mandatory and conditionally elective courses
- 30 ECTS degree project within the master programme
- a maximum of 30 ECTS credits of entirely elective courses

When the master's programme is a final part of the degree programme in Civil Engineering and Urban Management , there may be additional requirements according to the corresponding study programmes. For example, a master of science degree in the above degree programmes should include mathematics and natural science subjects for a minimum of 45 ECTS credits.

The application for degree certificate is done through the personal menu on KTH.se.

[Appendix 1 - Course list](#)

[Appendix 2 - Programme syllabus descriptions](#)



Appendix 1: Course list

Master's Programme, Civil and Architectural Engineering, 120 credits (TCAEM), Programme syllabus for studies starting in autumn 2020

General courses

Year 1

Conditionally elective courses

Course code	Course name	Credits	Edu. level
AE2610	Applied Hydrology	7.5 hp	Second cycle
AE2612	Hydraulic Engineering	7.5 hp	Second cycle
AF2003	Structural Engineering, Advanced Course	7.5 hp	Second cycle
AF2024	Finite Element Methods in Analysis and Design	7.5 hp	Second cycle
AF2101	Concrete Structures	7.5 hp	Second cycle
AF2102	Concrete Structures, Advanced Course	7.5 hp	Second cycle
AF2201	Bridge Design	7.5 hp	Second cycle
AF2213	Steel and Timber Structures	7.5 hp	Second cycle
AF2301	Building Materials, Advanced Course	7.5 hp	Second cycle
AF2302	Design of Timber-Based Hybrid Structures	7.5 hp	Second cycle
AF2401	Building Technology, Advanced Course	7.5 hp	Second cycle
AF2507	Sustainable Buildings - Concept, Design, Construction and Operation	7.5 hp	Second cycle
AF2508	Building Service Technologies and Systems	7.5 hp	Second cycle
AF2511	Building Service Technologies and Systems, Applied Course	7.5 hp	Second cycle
AF2602	Rock Mechanics	7.5 hp	Second cycle
AF2609	Foundation Engineering	7.5 hp	Second cycle
AF2901	Road- and Railway Track Engineering	7.5 hp	Second cycle
AF2903	Road Construction and Maintenance	7.5 hp	Second cycle
AI2805	Building Informatics and Logistics	7.5 hp	Second cycle

Year 2

Mandatory courses (7.5 Credits)

Course code	Course name	Credits	Edu. level
AF2023	Theory and Methodology of Science and Risk and Safety in Building Sciences	7.5 hp	Second cycle

Conditionally elective courses

Course code	Course name	Credits	Edu. level
AE2501	Environmental Impact Assessment	7.5 hp	Second cycle
AF2011	Structural Dynamics for Civil Engineers	7.5 hp	Second cycle
AF2025	Architectural Engineering Project	7.5 hp	Second cycle
AF213X	Degree Project in Concrete Structures, Second Cycle	30.0 hp	Second cycle
AF2203	Advanced Bridge Design	7.5 hp	Second cycle
AF223X	Degree Project in Structural Engineering and Bridges, Second Cycle	30.0 hp	Second cycle
AF233X	Degree Project in Building Materials, Second Cycle	30.0 hp	Second cycle
AF2402	Acoustics and Fire	7.5 hp	Second cycle
AF2403	Building Damages	7.5 hp	Second cycle
AF243X	Degree Project in Building Technology, Second Cycle	30.0 hp	Second cycle
AF2507	Sustainable Buildings - Concept, Design, Construction and Operation	7.5 hp	Second cycle
AF2512	Indoor Climate and Energy Modeling for High Performance Buildings, Project Course	7.5 hp	Second cycle
AF253X	Degree Project in Building Services and Energy Systems, Second Cycle	30.0 hp	Second cycle
AF259X	Degree Project in Fluid and Climate Technology, Second Cycle	30.0 hp	Second cycle
AF2610	Tunnel Engineering	7.5 hp	Second cycle
AF2611	Geotechnical Engineering, Advanced Course	7.5 hp	Second cycle
AF263X	Degree Project in Soil and Rock Mechanics, Second Cycle	30.0 hp	Second cycle
AF283X	Degree Project in Hydraulic Engineering, Second Cycle	30.0 hp	Second cycle
AF293X	Degree Project in Highway Engineering, Second Cycle	30.0 hp	Second cycle
AG2800	Life Cycle Assessment	7.5 hp	Second cycle
AG2806	Environmental Aspects of the Built Environment	7.5 hp	Second cycle
AH2905	Advanced Pavement Engineering Analysis and Design	7.5 hp	Second cycle

Supplementary information

Note: The course list updates 15th November.



Appendix 2: Specialisations

Master's Programme, Civil and Architectural Engineering, 120 credits (TCAEM), Programme syllabus for studies starting in autumn 2020

This programme has no specialisations.