



Programme syllabus

[An accessible version of the syllabus can be found in the Course and programme directory.](#)

Degree Programme Open Entrance 300 credits

Civilingenjörsutbildning öppen ingång

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

Goals and objectives of the programme

Open Entrance is one way to begin a programme which leads to the Master of Science in Engineering programme at KTH.

Open Entrance is the beginning of the Master of Science in Engineering studies, comprised of one year, which is then followed up by one of the Master of Science in Engineering programmes at KTH. During the year in Open Entrance, fundamental engineering subjects are taken which are common for many of KTH's Master of Science in Engineering programmes. During this year there is the possibility to become more familiar with the different Master of Science in Engineering programmes which are offered at KTH. The selection for Master of Science in Engineering programmes is done at the end of the spring semester in the first year.

Studies in Open Entrance are followed by studies at one of KTH's Master of Science in Engineering programmes which leads to a Degree of Master of Science in Engineering comprising 300 higher

education credits. All credits from the year in Open Entrance may be counted towards the degree.

Open Entrance is designed to give a good start for continued studies in one of KTH's Master of Science in Engineering programmes and supports the fulfilment of goals which apply for KTH's Master of Science in Engineering programmes. More information is contained in KTH's regulatory framework on: www.kth.se

Knowledge and understanding

Knowledge and understanding

After completion of year 1 in Open Entrance, the student should be able to:

- carry out mathematical reasoning and calculations within one and multiple variable analysis, linear algebra and numerical methods, important for the engineering profession and the continued studies
- show understanding of programming technology's bases and independently be able to carry out basic programming assignments
- explain basic chemical and physical concepts
- apply and explain fundamental principles within mechanics
- carry out basic measurements and experiments
- explain and partially understand certain important engineering complementary competencies, such as, for example, communication skills
- describe KTH's different Master of Science in Engineering programmes and the professional roles which are associated with these

Skills and abilities

After completion of the Master of Science in Engineering programme the student should be able to:

- demonstrate the ability to, with a holistic view, critically, independently and creatively identify, formulate and handle complex issues, analyse and critically evaluate different technical solutions and participate in research and development work and thereby contribute to the knowledge development,
- demonstrate the ability to critically and systematically integrate knowledge and demonstrate the ability to model, simulate, predict and evaluate processes, even based on limited information,
- demonstrate the ability to plan and, using appropriate methods, carry out qualified tasks within predetermined parameters,
- demonstrate the ability to develop and design products, processes and systems, taking into account the conditions and needs of human beings and society's goals for sustainable development, and

- demonstrate the ability to clearly present, orally and in writing, and discuss their conclusions and the knowledge and arguments that form the basis for these, in dialogue with different target groups, both in a national and an international context.

Ability to make judgements and adopt a standpoint

After completion of the Master of Science in Engineering programme the student should be able to:

- demonstrate the ability to perform assessments while taking into account relevant scientific, societal and ethical aspects, and demonstrate awareness of ethical aspects of research and development work,
- demonstrate insight into the possibilities and limitations of technology, its role in society and the responsibility of human beings for how it is used, including social, economic and environmental aspects,
- demonstrate insight into and the ability to work in a team and cooperate in groups with different compositions
- demonstrate the ability to identify their need of further knowledge and to continuously develop their skills and abilities.

Extent and content of the programme

- The duration of Open Entrance is one academic year and comprises 60 higher education credits, and is followed by studies comprising 240 higher education credits, nominally for four academic years in one of KTH's Master of Science in Engineering Programmes.
- The Open Entrance programme is at first cycle.
- The courses in Open Entrance are taught in Swedish, but English course literature can be used.

Eligibility and selection

General and specific entry requirements

For entry requirements and selection principles, see KTH's admissions policy on www.kth.se

Everyone who has been admitted to Open Entrance is guaranteed a place in one of KTH's Master of Science in Engineering programmes. However, the number of available places in the respective Master of Science in Engineering programmes is limited and, in the case that the number of applicants for a certain programme is higher than the number of places, a selection is made based on the study results during the first year at Open Entrance.

Implementation of the education

Structure of the education

Programme arrangement

The academic year for KTH's first and second cycle education is divided into four periods. For more information, see the relevant academic year division on www.kth.se

Courses

The programme is course-based. Lists of courses are included in appendix 1.

Year 1 comprises nine compulsory courses. The courses are defined in the academic calendar. The goals, entry requirements, contents and course requirements for each course can be found in their respective course syllabuses. Depending on the choice of the next Master of Science in Engineering programme, it may be necessary to take programme-specific, supplementary courses for the autumn semester of year 2.

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.

A seven-grade criterion-referenced grading scale A-F is used for courses at KTH as final grades for courses at first and second cycle. A-E are grades corresponding to a pass, with A being the highest grade. The grades pass (P) and fail (F) are used as final grades when there are special reasons.

Since the grading systems differ very much between different countries, the grades are not translated from exchange studies abroad.

Degree project, first and second cycle, have grading scale pass (P) and fail (F).

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

Selection of courses

The following dates apply for the application for courses

- 1-15 May for the autumn semester
- 1-15 November for the spring semester

Selection of Master of Science in Engineering programme

During the spring semester students submit an application for the Master of Science in Engineering programme for the last four years. Information on the selection for the Master of Science in Engineering programme is provided by the programme during the academic year in Open Entrance.

Everyone who has been admitted to Open Entrance is guaranteed a place in one of KTH's Master of Science in Engineering programmes. However, the number of available places in the respective Master of Science in Engineering programmes is limited and, in the case that the number of applicants for a certain programme is higher than the number of places, a selection is made based on the study results during the first year at Open Entrance.

The application should be submitted in accordance with KTH's admission procedures for Open Entrance and is processed through the system antagning.se

Each of KTH's Master of Science in Engineering programmes only accepts a pre-determined limited number of students from Open Entrance. During the selection students rank several options for the desired programme, first, second, third, etc.

Selection for the programmes is conducted on the basis of study results of Open Entrance for the same academic year the student was admitted to Open Entrance.

1. The selection is primarily based on the number of compulsory higher education credits out of the Open Entrance curriculum and schedule which, during the year, have examined up to the spring semester's last day. NOTE: Exam components completed after this date, for example, during the re-exam period after the end of the spring semester or during the August period are not included during the selection.
2. In the case of the same number of examined higher education credits, the selection is based on the weighted average grade of all completed courses or exam components where higher education credits are included according to point 1.
3. If the weighted average grade is the same then there will be drawing of lots.

The students are ranked according to the above-stated criteria. A student with a higher ranking always precedes a student with a lower ranking. This means that the student does not need to prioritise his/her choices tactically; choosing a popular programme as first choice and not getting in does not worsen the likelihood of being accepted to the second-choice programme, etc. For applicable rules for selection, see below.

Selection period

The programme selection period is open for a limited time in May. The exact dates are communicated well in advance. No changes can be made to the selected choices after the end of the selection period.

KTH's unit for admission processes Open Entrance's selection of the Master of Science in Engineering programme through the system antagning.se.

The schedule for selection of the Master of Science in Engineering programme is available on KTH's website for Open Entrance.

The admission notification is sent in July through antagning.se with instructions on how students can reply to the admission notification. Students need to accept within the stipulated timeframe in order to receive the offered place in the programme. If students fail to reply within the stipulated timeframe they will be removed from the offered place in the programme. For more instructions, see www.antagning.se

Transition to Master of Science in Engineering programmes

According to the rector's decision V-2006-1510, a student in Open Entrance who has passed KTH's and the accepting programme's ordinary requirements for promotion to year 2 must be registered for completion in Open Entrance and be registered (FFG) in programme semester 3 in the accepting programme. A student who does not fulfil the ordinary requirements for promotion must be re-registered (OM) in programme semester 2 in Open Entrance and registered (FFG) in programme semester 3 in the accepting programme. An individual study plan must be prepared for students who, in this respect, have double registration. The individual study plan must be prepared by the accepting school. When the student has fulfilled the requirements for promotion in the accepting programme, he/she will be registered for completion of Open Entrance.

Rules for selection for Master of Science in Engineering programmes

How is the number of examined higher education credits counted?

Only compulsory courses which are included in the Open Entrance curriculum and schedule during the autumn and spring semesters may be counted. For example, courses in mathematics during the acceptance period, SF1611, SF1651 and SF1652 are not counted in the selection because these courses are not compulsory. The supplementary courses in mechanics, physics or mathematics which must be taken by the student for certain programmes are neither counted. As described in the programme syllabus, only the reported exam components completed at the latest, during the spring semester's last day of the academic year in which the student started his/her studies in Open Entrance, are counted.

See below for credited or exchange courses.

Student's responsibility

The selection is based on reported results in the study documentation system Ladok. It is therefore essential that all pass marks are reported in Ladok at the time of selection. The selection is done in June and the exact date is communicated well in advance.

NOTE: Open Entrance's students are responsible for checking that all relevant credits have been reported with the exam date to Ladok before the selection at the latest by the last day of the spring semester for regular examination.

Students are encouraged to check their study results on KTH's website, at the latest, one week before the selection. If any study results have not been reported or are incorrect, students should contact the respective department.

The selection procedure will not be revised on the basis of non-reported credits.

How is the merit rating calculated?

The ranking is primarily based on higher education credits earned for the programme. If the higher education credits are the same, the grade average is compared.

Formulas for calculation of merit rating

The merit rating calculated is an integer between 0 and 9999. The merit rating is calculated based on both the number of higher education credits earned and grade average.

Each higher education credit (hp) earned in the programme contributes with 160 to the merit rating, i.e. 240 credits for 1.5 higher education credits.

The credit from the grade is received as the grade's weight multiplied by the number of higher education credits for the component. For completed courses with final grades, the course's final grade multiplied by the course's total number of higher education credits is counted.

0 per 1.5 higher education credits with grade F.
0 per 1.5 higher education credits with grade FX.
1 per 1.5 higher education credits with grade E.
2 per 1.5 higher education credits with grade D,
3 per 1.5 higher education credits with grade C,
4 per 1.5 higher education credits with grade B,
5 per 1.5 higher education credits with grade A

For components with grading scale P/F (Pass/Fail), P has the same weight as the grade E. The grade F or FX does not provide any credit.

In this way the grade A in all courses would provide a credit of 200 to the merit rating, which is lower than the 240 which is received for a completed course component of 1.5 higher education credits.

Therefore, in order to receive a high merit rating it is thus better to complete many courses than to invest in fewer courses with a higher grade.

Only courses from the current academic year which are a part of Open Entrance's year 1 for the current academic year are included in the merit rating. Credited courses are included with the grade E.

* Maximum 2 courses are credited with full credit value in the merit calculation. Credits for courses in addition to this are only counted by 50%.

* If the formula results in a decimal number the value is rounded off to the nearest integer.

Recognition of previous academic studies

What applies for credited courses or exchange courses?

Courses in Open Entrance can be credited or exchanged in accordance with KTH's policy on credit transfer for higher education courses[F1] , see KTH's regulatory framework on KTH's website.

Note that credited courses impact the selection credits for the student.

The nominal number of higher education credits in Open Entrance's courses apply: if, for example, a course of 9 higher education credits from another university is credited against a course of 7.5 higher education credits in Open Entrance, this is counted as 7.5 higher education credits during the selection procedure. The same applies for courses taken at KTH.

Courses passed during previous higher education studies are always included in the selection procedure with grade E.

If more than two courses are credited or exchanged in accordance with an individual study plan, all credited and exchanged courses are included, except the two with the highest nominal number of higher education credits, with half the number of higher education credits. The purpose of this is to prevent Open Entrance from being used as a shortcut to Master of Science in Engineering programmes by students who have already studied the majority of the courses previously.

Example: A student starts Open Entrance and has already studied a lot of mathematics, and is able to credit the three mathematical courses Numerical Methods, 6 higher education credits, Algebra and Geometry 7.5 higher education credits and Calculus in One Variable 7.5 higher education credits. Then during the selection process Algebra and Geometry as well as Calculus in One Variable is counted with full number of higher education credits, 7.5 higher education credits but the third course Numerical Methods is counted with 3.0 higher education credits (half the number of higher education credits). All three credited courses are counted with the grade E during calculation of the merit rating, irrespective of the grades of the courses against which credit has taken place.

Studies abroad

In Master of Science in Engineering programmes there is the opportunity to study parts of the courses within the framework of any of KTH's exchange agreements.

The application period for exchange is the middle of January and most agreements have been written for one year of study and or degree project. Exchange studies are not possible in year 1 within the Open programme.

Depending on which accepting Master of Science in Engineering programme you continue with, there are different conditions for exchange studies.

Additional and detailed information on exchange studies is available here:
http://www.kth.se/student/utlandsstudier?l=sv_SE&programme=f

There is also the opportunity to study a Master's programme which covers a period (up to one year) of studies abroad, see more below Application for final Master's programme, years 4–5.

Degree project

Following transition to the accepting programme, there may be programme-specific rules for degree projects but in general the following rules apply for degree projects:

Degree project, first cycle, 15 higher education credits (degree project for Degree of Bachelor)

The programme includes a degree project for Degree of Bachelor of 15 higher education credits which corresponds to 50% studies in one semester. The degree project is the final part of the education. The project work may begin when special admission requirements for the course are fulfilled.

Degree project, second cycle, 30 higher education credits

The programme includes a degree project at first cycle which corresponds to a course of 30 higher education credits corresponding to full-time studies in one semester. 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 degree project is normally conducted within a subject which is essential for the programme's technology area.
- The degree project may not start before the assignment has been approved by an examiner at the selected department and is registered with the school's office of student affairs on a specific form.
- The examiner is responsible for ensuring that the student has sufficient prior knowledge for the selected assignment.
- The degree project is based on the knowledge which is acquired throughout the study period and should normally be completed during the last semester within the Master's programme the student has chosen. If a student would like to complete a degree project within another subject area, this should be approved by the Programme Director.
- The degree project should show that the student is capable of independently applying the acquired knowledge during the study period and should therefore be completed at the end of the programme and therefore normally starts at the earliest during semester 9 of the selected subject area.
- It shall constitute proof of an independent piece of engineering work comprising theoretical and /or experimental activity with an accompanying written report.

- The degree project may include other components, for example, seminars, information searches, classroom observation visits, public examination or other elements which examiners or supervisors deem to be appropriate.
- The degree project is conducted individually or together with another student. In the latter case, the examiner should ensure that each student's efforts correspond to the requirements of an individual degree project.
- Supervisors are appointed by the examiner.

See KTH's regulatory framework, Comprehensive rules and guidelines for degree projects of 30 higher education credits for Degree of Master of Science in Engineering, www.kth.se.

The Master of Science in Engineering studies end with a degree project, second cycle, of 30 higher education credits. There is more information in each programme syllabus of the Master of Science in Engineering programme.

Degree

Open Entrance leads to a Degree of Master of Science in Engineering of 300 higher education credits in one of KTH's Master of Science in Engineering programmes. All courses during the first year in Open Entrance may be counted in the degree.

Application for the degree can be submitted through the student's personal menu on www.kth.se.

The KTH local Degree Ordinance can be found in KTH's regulatory framework, www.kth.se.

Appendix 1 - Course list

Appendix 2 - Programme syllabus descriptions



Appendix 1: Course list

Degree Programme Open Entrance (COPEN) General courses

Year 1

Mandatory courses (60.0 Credits)

| Code | Name | Credits | Edu. level |
|------------------------|--|---------|-------------|
| DD1310 | Programming Techniques | 6.0 hp | First cycle |
| KD1000 | Chemical Principles for Sustainability | 3.0 hp | First cycle |
| SF1502 | Engineering Skills | 6.0 hp | First cycle |
| SF1546 | Numerical Methods, Basic Course | 6.0 hp | First cycle |
| SF1624 | Algebra and Geometry | 7.5 hp | First cycle |
| SF1625 | Calculus in One Variable | 7.5 hp | First cycle |
| SF1626 | Calculus in Several Variables | 7.5 hp | First cycle |
| SG1133 | Mechanics I | 9.0 hp | First cycle |
| SK1115 | Electromagnetism and Waves | 7.5 hp | First cycle |



Appendix 2: Specialisations

Degree Programme Open Entrance (COPEN)

This programme has no specialisations.