



Programme syllabus

Bachelor's Programme in Information and Communication Technology Kandidatprogram, informations- och kommunikationsteknik *180.0 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

Thematically, the students should obtain basic disciplinary knowledge, skills and competencies during the first three years of the education in the core areas of information and communication technology: mathematics, electronics, computer, communication and software engineering.

In addition to the requirements of the Higher Education Ordinance the following apply:

Knowledge and understanding

To be awarded an engineering degree in information and communication technology, the student should be able to:

- apply mathematics and basic natural sciences within information and communication technology.
- follow and utilize the knowledge development within the field of technology.

Skills and abilities

To be awarded an engineering degree in information and communication technology, the student should be able to:

- apply creative and critical working methods to formulate and explore problems within the area of information and communication technology with modern methods and tools.
- analyze technical problems from a systems perspective with an overall view on technical systems and their life cycle from conception, design, implementation, possibly production, operation, maintenance and phasing-out.
- adopt a problem-solving perspective based on the need and functionality of the product and service, considering the individuals using the product as well as the technology interplay within the society.
- discuss technical problems and present work results in oral and written form, in English, to different target groups, as needed for an international career.

Ability to make judgements and adopt a standpoint

For an engineering degree in information and communication technology, the student should:

- by exercise and reflection have developed an ability to work efficiently in groups of different compositions, nationalities and abilities.

Reference to KTH's local Degree Ordinance <https://intra.kth.se/styrning/regelverk/utbildning-pa-grund-och-avancerad-niva-1.660818>.

Extent and content of the programme

The education comprises three years and 180 credits.

The three years are for first-cycle studies. The education is given in English.

Eligibility and selection

Eligibility is determined by modified specific entry requirements 9:

Mathematics course E (4), Physics course B (2), English B

Entry requirements and admission take place according to KTH's admission regulations, see KTH's regulatory framework <http://intra.kth.se/regelverk/utbildning-forskning/grundutbildning>.

Implementation of the education

Structure of the education

The academic year division in semesters, periods etc. are described in KTH's regulatory framework <https://intra.kth.se/styrning/regelverk/utbildning-pa-grund-och-avancerad-niva-1.660818>.

The courses in school years 1-3 should help the student to acquire a solid foundation of mathematics /natural sciences, basic technological sciences and professional skills.

Courses

The programme is course-based. Lists of courses are included in [appendix 1](#).

Courses are either compulsory or elective. These are scheduled so that primarily two courses are read and completed in the same period.

In school year 3 a number of elective courses can be chosen. The space for elective courses within the programme can be used to study pre-requisite courses for different master programmes in case there are such requirements.

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.

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

Student that has read some courses at another university or higher education institution can apply to transfer the credits to the Bachelor's Programme in Information and Communication Technology. The transferred courses may not overlap with any course already read at KTH.

For recognition of a compulsory course, documented knowledge of at least the same extent for the equivalent subject must be demonstrated.

Application documents for transfer or change of courses should be delivered to the study adviser for assessment and decision by the programme co-ordinator of the Bachelor's Programme in Information and Communication Technology. The application should include attested copies of academic transcripts for invoked courses and course descriptions (course syllabus). Decisions for such applications are normally available within a couple of weeks from the date of the application. A copy of the decision is always mailed to the applicant.

Reference to the policy that is in KTH's regulatory framework <http://intra.kth.se/regelverk/utbildning--forskning/grundutbildning>.

Studies abroad

To qualify for exchange studies within the scope of the agreements established with selected foreign universities the following applies:

Students in school year 2 may not have more than two courses unfinished.

The KTH student selection criteria apply. Reference to the selection criteria in KTH's regulatory framework <https://intra.kth.se/styrning/regelverk/utbildning-pa-grund-och-avancerad-niva-1.660818>.

Degree project

The degree project is a first cycle course that comprises 15 higher education credits and is the final part of the education.

The project work may begin when special admission requirements for the course are fulfilled.

The selection of a suitable degree project is made in consultation with the examiner.

The degree project is graded P/F (Pass/Fail). In order to pass, the degree project must show high quality as tested against the relevant examination objectives, often all national examination objectives. Directives and criteria for passing and grading are available at:

<https://intra.kth.se/styrning/regelverk/utbildning-pa-grund-och-avancerad-niva-1.660818>.

Specific directives and criteria for grading is available in the official course syllabus.

Degree

The conditions for higher education qualification are satisfied when the course requirements in the program are satisfied. The study programme that the student has finished is stated in the degree certificate.

The application for degree is made via the Personal menu at www.kth.se.

Reference to KTHs regulatory framework <https://intra.kth.se/styrning/regelverk/utbildning-pa-grund-och-avancerad-niva-1.660818>.

[Appendix 1 - Course list](#)

[Appendix 2 - Programme syllabus descriptions](#)



Appendix 1: Course list

Programme syllabus for studies starting in autumn 2018, Bachelor's Programme in Information and Communication Technology (TCOMK)

General courses

Year 1

Mandatory courses (60.0 Credits)

Code	Name	Credits	Edu. level
ID1018	Programming I	7.5 hp	First cycle
IE1204	Digital Design	7.5 hp	First cycle
IE1206	Embedded Electronics	7.5 hp	First cycle
II1306	Introduction to IT	1.5 hp	First cycle
IS1200	Computer Hardware Engineering	7.5 hp	First cycle
SF1610	Discrete Mathematics	7.5 hp	First cycle
SF1684	Algebra and Geometry	7.5 hp	First cycle
SF1685	Calculus in One Variable	7.5 hp	First cycle
SF1690	Basic Course in Mathematics	6.0 hp	First cycle

Year 2

Mandatory courses (51.0 Credits)

Code	Name	Credits	Edu. level
ID1019	Programming II	7.5 hp	First cycle
ID1020	Algorithms and Data Structures	7.5 hp	First cycle
II1305	Project in Information and Communication Technology	7.5 hp	First cycle
IK1203	Networks and Communication	7.5 hp	First cycle
IV1303	Modern Software Development	6.0 hp	First cycle
SF1686	Calculus in Several Variable	7.5 hp	First cycle
SK1118	Electromagnetism and Waves	7.5 hp	First cycle

Optional courses

Code	Name	Credits	Edu. level
ID2216	Developing Mobile Applications	7.5 hp	Second cycle
II1303	Signal Processing	7.5 hp	First cycle
II1307	Active Career	1.5 hp	First cycle
LS1419	English for Employment	7.5 hp	First cycle

Supplementary information

9 credits elective courses belongs to year 2.

The listed elective courses are suggested elective courses.

Year 3

Mandatory courses (49.5 Credits)

Code	Name	Credits	Edu. level
AG1815	Sustainable Development, ICT and Innovation	7.5 hp	First cycle
ID1206	Operating Systems	7.5 hp	First cycle
II143X	Degree Project in Information and Communication Technology, First Cycle	15.0 hp	First cycle
IV1013	Introduction to Computer Security	7.5 hp	First cycle
ME1003	Industrial Management, Basic Course	6.0 hp	First cycle
SF1900	Probability Theory and Statistics	6.0 hp	First cycle

Optional courses

Code	Name	Credits	Edu. level
DD2352	Algorithms and Complexity	7.5 hp	Second cycle
DD2401	Neuroscience	7.5 hp	Second cycle
IC1007	Human-computer Interaction: Principles and Design	7.5 hp	First cycle
ID1212	Network Programming	7.5 hp	First cycle
ID1214	Artificial Intelligence and Applied Methods	7.5 hp	First cycle
ID1217	Concurrent Programming	7.5 hp	First cycle
ID2202	Compilers and Execution Environments	7.5 hp	Second cycle
ID2213	Logic Programming	7.5 hp	Second cycle
ID2216	Developing Mobile Applications	7.5 hp	Second cycle
II1303	Signal Processing	7.5 hp	First cycle
II1307	Active Career	1.5 hp	First cycle
IK1330	Wireless Systems	7.5 hp	First cycle
IK1552	Internetworking	7.5 hp	First cycle
IK2206	Internet Security and Privacy	7.5 hp	Second cycle
IS2202	Computer Systems Architecture	7.5 hp	Second cycle
LS1419	English for Employment	7.5 hp	First cycle

[ME2163 Leading People and Organizations in Different Contexts](#) 6.0 hp Second cycle
[SF1811 Optimization](#) 6.0 hp First cycle

Supplementary information

10,5 credits elective courses belongs to year 3.

The listed elective courses are suggested elective courses.



Appendix 2: Specialisations

Programme syllabus for studies starting in autumn 2018, Bachelor's Programme in Information and Communication Technology (TCOMK)

This programme has no specialisations.