



Programme syllabus

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

Bachelor's Programme in Information and Communication Technology 180 credits

Kandidatprogram, informations- och kommunikationsteknik

Valid for students admitted to the education from autumn 14 (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 informatics, the student should:

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

Skills and abilities

To be awarded an engineering degree in informatics, the student should:

- within the area of information and communication technology be able to apply creative and critical working methods to formulate and explore problems with modern methods and tools
- be able to 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.
- be able to work with problem-solving that takes its starting point in the product or the need and functionality considering the individual's using the product and the technology interplay in the society.
- have skills of efficient oral and in written communication, in English, with different target groups. Corresponding to what is required for an international career.

Ability to make judgements and adopt a standpoint

For an engineering degree in informatics, the student should:

- by exercise and reflection have developed an ability to work efficient in groups of different compositions, nationalities and abilities. Reference to KTH's local Degree Ordinance

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

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The academic year division in semesters, periods etc. are described in KTH's regulatory framework <http://intra.kth.se/regelverk/utbildning-forskning/allmant/1.27175>

The first two years consists of compulsory conditionally elective courses. These are scheduled so that primarily two courses are read and completed in the same period.

School year three has two compulsory courses of which one is an advanced study project, that also can be used as degree project for a Bachelor of Science degree, and one conditionally elective course..

The courses in school year 1-3 should help the student to acquire a solid foundation of: mathematics /natural sciences, basic technological sciences and professional skills. In school year three the first elective courses are chosen and the choice of specialization.

Courses

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

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It is recommended that the space for elective courses within the programme is used to study pre-requisite courses for the selected Master in case there are such requirements. Pre-requisite courses for the Master programmes are listed 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.

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Conditions for participation in the programme

Registration for studies (Studieanmälan) should be made by all the students that intend to study the following semester. This application constitutes a basis for semester registration and basis for

decision about promotion to the following semester. The registration for studies for the autumn semester is made no later than May 15 and for the spring semester no later than November 15. Course choice is made normally in connection with the registration for studies.

The rules for promotion to the next school year for the IT-programme are:

From school year 1 to school year 2 - 45 HE credits passed from school year 1.

From school year 2 to school year 3 - 90 HE credits passed from school year 1 and 2, of which at least 50 HE credits from school year 1 .

Recognition of previous academic studies

Student that has read some/some courses at another university or higher education institution can apply to transfer the credits the IT-programme. The transferred courses may not overlap with any course already read at KTH.

To exchange 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 IT-programme. To the application should be enclosed 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 KTHs regulatory framework <http://intra.kth.se/regelverk/utbildning--forskning/grundutbildning>

Studies abroad

To be qualified for exchange studies within the scope of the agreements that have with select foreign universities the following apply:

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 <http://intra.kth.se/regelverk/utbildning-forskning/grundutbildning>

Degree project

For a BSc degree, a degree project of 16 HE credits within the field of technology should be carried out. The degree project is normally carried out at the end of the education and cannot be started, until the student has achieved at least 120 HE credits within the education.

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

The degree project is graded from A-F where the grades A-E are passing grades. To pass, the work should be assessed to pass all three grading criteria: process, technically/scientific content and presentation.

Reference to KTHs regulatory framework <http://intra.kth.se/regelverk/utbildning-forskning/grundutbildning>

Degree

The conditions for higher education qualification are satisfied, in that the course requirements in the program are satisfied.

In the degree certificate, the study programme that the student has gone through is stated. The application for higher education qualification is delivered to the school administration office at the school for Information - and Communication Technology. Reference to KTHs regulatory framework <http://intra.kth.se/regelverk/utbildning-forskning/grundutbildning>

Appendix 1 - Course list

Appendix 2 - Programme syllabus descriptions



Appendix 1: Course list

Bachelor's Programme in Information and Communication Technology (TCOMK)

General courses

Year 1

Mandatory courses (64.5 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
II1304	Engineering Skills for ICT <i>3 cr belong to study year 1</i>	7.5 hp	First cycle
IS1200	Computer Hardware Engineering	7.5 hp	First cycle
SF1610	Discrete Mathematics	7.5 hp	First cycle
SF1624	Algebra and Geometry	7.5 hp	First cycle
SF1625	Calculus in One Variable	7.5 hp	First cycle
SF1659	Mathematics, Basic Course	4.5 hp	First cycle

Optional courses

Code	Name	Credits	Edu. level
II1310	Introduction to Computer Studies	1.5 hp	First cycle
SF1611	Introductory Course in Mathematics I	1.5 hp	First cycle

Year 2

Mandatory courses (58.5 Credits)

Code	Name	Credits	Edu. level
ID1019	Programming II	7.5 hp	First cycle
ID1020	Algorithms and Data Structures	7.5 hp	First cycle
IF1613	Electromagnetism and Waves	7.5 hp	First cycle
II1304	Engineering Skills for ICT <i>1,5 cr belong to study year 2</i>	7.5 hp	First cycle
IK1203	Networks and Communication	7.5 hp	First cycle
IV1303	Modern Software Development	6.0 hp	First cycle
LI1012	Information and Retrieval and Source Criticism	1.5 hp	First cycle
ME1003	Industrial Management, Basic Course	6.0 hp	First cycle
SF1626	Calculus in Several Variables	7.5 hp	First cycle

Conditionally elective courses

Code	Name	Credits	Edu. level
ID1003	Project IT	7.5 hp	First cycle
IS1204	IT Project Course, part 2	7.5 hp	First cycle

Year 3

Mandatory courses (28.5 Credits)

Code	Name	Credits	Edu. level
AG1815	Sustainable Development, ICT and Innovation	7.5 hp	First cycle
ID2206	Operating Systems	7.5 hp	Second cycle
II1304	Engineering Skills for ICT <i>3 cr belong to study year 3</i>	7.5 hp	First cycle
SF1901	Probability Theory and Statistics	6.0 hp	First cycle

Optional courses

Code	Name	Credits	Edu. level
DD1365	Software Engineering	6.0 hp	First cycle
DD2352	Algorithms and Complexity	7.5 hp	Second cycle
DD2372	Automata and Languages	6.0 hp	Second cycle
DD2401	Neuroscience	7.5 hp	Second cycle
IC1007	Human-computer Interaction: Principles and Design	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
ID2212	Network Programming with Java	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
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
IL1331	VHDL Design	7.5 hp	First cycle
IS2202	Computer Systems Architecture	7.5 hp	Second cycle
ME2063	Team Leadership and Human Resource Management	6.0 hp	Second cycle

Supplementary information

Elective Courses 21 credits belong to study year 3.

Degree Project 15 credits is mandatory during the spring term.



Appendix 2: Specialisations

Bachelor's Programme in Information and Communication Technology (TCOMK)

This programme has no specialisations.