Programme syllabus

Degree Programme in Information and Communication Technology
Civilingenjörsutbildning i informationsteknik
300.0 credits

Valid for students admitted to the education from autumn 12 (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. Under the final two years of the education, knowledge and skills are deepened within some subarea coinciding with a master's education at KTH or an Erasmus Mundus Master's programme where KTH participates.

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.

For the international specialization applies also that a Master of Engineering that has followed it should be able to:

follow and utilize the knowledge development within the field of technology on respective language (Spanish, German, French).

follow and utilize the knowledge development within the field of technology on respective language at a general level (Chinese and Japanese).
Skills and abilities

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

Within the area of information and communication technology can 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 Swedish and English, with different target groups. Corresponding to what is required for an international career.

For the international specialization applies also that a Master of Engineering that has followed it should be able to: communicate efficient with colleagues on the language in question (Spanish, German, French) function professional in countries the language is where talked (all languages)

Ability to make judgements and adopt a standpoint

For an engineering degree in informatics, the student should: appreciate that engineering problems are complex, often can be not well defined, and sometimes contain conflicting conditions. Through 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

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

Extent and content of the programme

The education comprises five years and 300 credits.

The three first years are for first-cycle studies and the final two for second-cycle studies.

The final two the years are a specialization that coincides with a Master's programme. The selection of elective Master's programmes can be changed, as the KTH programme offered on master's level may change. Easmus Mundus programmes where KTH participates can, after approval from the programme co-ordinator, also constitute a specialization. For Erasmus Mundus the programmes there are no reserved /guaranteed seats. These programmes must be applied to in competition with other applicants. Currently, the following Master's programmes constitute possible specializations:

Computer Science
Embedded systems
Industrial Management
Communication Systems
Machine Learning

Media Management

Medical Engineering

Human Computer Interaction

Network Services and Systems

Software Engineering of Distributed Systems

System-on-Chip Design

Wireless Systems

Students can be qualified to follow other Master's programme within KTH. If a student wants to follow another Master's programme than those listed as possible specialisations, consultation should take place with the programme co-ordinator for the IT-programme.

KTH's policy is that first-cycle courses are taught in Swedish and that second-cycle studies are conducted in English. The majority of courses for second-cycle studies is consequently in English. Certain courses for first-cycle studies can be in English dependent on the teachers.

Eligibility and selection

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 http://intra.kth.se/regelverk/utbildning-forskning/allmant/1.27175

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

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

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 for the second cycle is made.
The guiding principle for specializations on the IT-programme is to make use of KTH's Master's programmes in the following way as far as possible:

The courses of the Master's programme are read in school year 4 and 5

Possible pre-requisites for respective Master's programmes are read in school year 3, compulsory courses on the Master's programme become general compulsory courses for students on the IT-programme

Some courses can be excluded if they overlap with compulsory courses on the IT-programme.

Apart from degree project should at least 60 HE credits courses for second-cycle studies within the field of technology come from the Master (or its pre-requisites.) A course in Theory of Science/Research Methodology equivalent to II2202 Research Methodology and Scientific Writing is mandatory.

To study the IT-programme with a an international specialization implies that one reads language courses in parallel with other courses and that the student study abroad for one year exchange period in a country where the language in question is spoken and is used as language of instruction at the receiving university.

For the European languages specializations 24 HE credits courses in language and culture are read in addition to the regular courses. The language courses are distributed as 7,5 + 7,5 + 9 HE credits over the first three years of the education. Year 4 of the education is studied abroad with 15 HE credits language and 45 HE credits courses within the chosen specialization (Master). In August, the summer between the third and fourth year of the education, a compulsory 4,5 HE culture course is read. The degree project is normally performed in Sweden.

For the Asian languages the following apply. In addition to the regular courses of the program there are a total of 30 HE credits courses in language and culture distributed as 6 + 6 + 9 + 9 HE credits over the first four years of the education. School year 5 is studied abroad divided into 30 HE credits of language and culture courses, and 30 HE credits degree project.

Since the courses in language and culture exceed the amount of optional courses, an individual study plan is made for these students.

Courses

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

For students studying the international specializations, there is no space for completely optional courses. Students on other specializations can take about 22.5 HE credits optional courses. For these, it is recommended to choose courses that prepare primarily for the selected specialization/Master's programme. It is also recommended to take one or more of the courses ME1003, ME2063, ME1506 or ME1507.

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
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.

From school year 3 to school year - 150 HE credits passed from school year 1, 2 and 3, of which at least 110 HE credits from school year 1 and 2. The advanced study project course of 15 HE credits (course code not established) must be completed.

Choice of Master's programme takes place before school year 4. The registration for individual courses is made before the third week in the course for students that have declared that they intend to follow the course.

**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 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 KTH's 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

Students in school year 3 may not have more than three 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 engineering degree, a degree project of 30 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 can not be started, until the student has achieved at least 240 HE credits within the education. The degree project should be carried out within the chosen Master's programme.

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. The description of the higher education qualification is Engineering degree. 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

Degree Programme in Information and Communication Technology (CINTE), Programme syllabus for studies starting in autumn 2012

General courses

Year 1

Mandatory courses (64.5 Credits)

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course name</th>
<th>Credits</th>
<th>Edu. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID1004</td>
<td>Object-oriented Programming</td>
<td>7.5</td>
<td>First cycle</td>
</tr>
<tr>
<td>ID1005</td>
<td>Algorithms and Data Structures</td>
<td>7.5</td>
<td>First cycle</td>
</tr>
<tr>
<td>IE1204</td>
<td>Digital Design</td>
<td>7.5</td>
<td>First cycle</td>
</tr>
<tr>
<td>IE1304</td>
<td>Engineering Skills for ICT</td>
<td>7.5</td>
<td>First cycle</td>
</tr>
<tr>
<td>IS1200</td>
<td>Computer Hardware Engineering</td>
<td>7.5</td>
<td>First cycle</td>
</tr>
<tr>
<td>SF1624</td>
<td>Algebra and Geometry</td>
<td>7.5</td>
<td>First cycle</td>
</tr>
<tr>
<td>SF1625</td>
<td>Calculus in One Variable</td>
<td>7.5</td>
<td>First cycle</td>
</tr>
<tr>
<td>SF1626</td>
<td>Calculus in Several Variable</td>
<td>7.5</td>
<td>First cycle</td>
</tr>
<tr>
<td>SF1659</td>
<td>Mathematics, Basic Course</td>
<td>4.5</td>
<td>First cycle</td>
</tr>
</tbody>
</table>

Optional courses

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course name</th>
<th>Credits</th>
<th>Edu. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>IE1310</td>
<td>Introduction to Computer Studies</td>
<td>1.5</td>
<td>First cycle</td>
</tr>
<tr>
<td>SF1611</td>
<td>Introductory Course in Mathematics I</td>
<td>1.5</td>
<td>First cycle</td>
</tr>
</tbody>
</table>

Year 2

Mandatory courses (60.0 Credits)

Course
<table>
<thead>
<tr>
<th>code</th>
<th>Course name</th>
<th>Credits</th>
<th>Edu. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>EI1102</td>
<td>Electrical Circuit Analysis</td>
<td>7.5 hp</td>
<td>First cycle</td>
</tr>
<tr>
<td>ID1019</td>
<td>Programming II</td>
<td>7.5 hp</td>
<td>First cycle</td>
</tr>
<tr>
<td>IF1613</td>
<td>Electromagnetism and Waves</td>
<td>7.5 hp</td>
<td>First cycle</td>
</tr>
<tr>
<td>II1304</td>
<td>Engineering Skills for ICT</td>
<td>7.5 hp</td>
<td>First cycle</td>
</tr>
<tr>
<td>II1304</td>
<td>Engineering Skills for ICT</td>
<td>1.5 cr</td>
<td>First cycle</td>
</tr>
<tr>
<td>IK1203</td>
<td>Networks and Communication</td>
<td>7.5 hp</td>
<td>First cycle</td>
</tr>
<tr>
<td>IV1302</td>
<td>IT-project, part 1 method</td>
<td>7.5 hp</td>
<td>First cycle</td>
</tr>
<tr>
<td>LI1021</td>
<td>Information Searching</td>
<td>1.5 hp</td>
<td>First cycle</td>
</tr>
<tr>
<td>ME1003</td>
<td>Industrial Management, Basic Course</td>
<td>6.0 hp</td>
<td>First cycle</td>
</tr>
<tr>
<td>SF1610</td>
<td>Discrete Mathematics</td>
<td>7.5 hp</td>
<td>First cycle</td>
</tr>
</tbody>
</table>

**Conditionally elective courses**

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course name</th>
<th>Credits</th>
<th>Edu. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID1003</td>
<td>Project IT</td>
<td>7.5 hp</td>
<td>First cycle</td>
</tr>
<tr>
<td>IS1204</td>
<td>IT Project Course, part 2</td>
<td>7.5 hp</td>
<td>First cycle</td>
</tr>
</tbody>
</table>

**Year 3**

**Mandatory courses (28.5 Credits)**

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course name</th>
<th>Credits</th>
<th>Edu. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>AG1815</td>
<td>Sustainable Development, ICT and Innovation</td>
<td>7.5 hp</td>
<td>First cycle</td>
</tr>
<tr>
<td>ID2206</td>
<td>Operating Systems</td>
<td>7.5 hp</td>
<td>Second cycle</td>
</tr>
<tr>
<td>II1304</td>
<td>Engineering Skills for ICT</td>
<td>3 cr</td>
<td>First cycle</td>
</tr>
<tr>
<td>SF1901</td>
<td>Probability Theory and Statistics</td>
<td>6.0 hp</td>
<td>First cycle</td>
</tr>
</tbody>
</table>

**Optional courses**

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course name</th>
<th>Credits</th>
<th>Edu. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>DD1350</td>
<td>Logic for Computer Science</td>
<td>6.0 hp</td>
<td>First cycle</td>
</tr>
<tr>
<td>DD1352</td>
<td>Algorithms, Data Structures and Complexity</td>
<td>9.0 hp</td>
<td>First cycle</td>
</tr>
<tr>
<td>DD2395</td>
<td>Computer Security</td>
<td>6.0 hp</td>
<td>Second cycle</td>
</tr>
<tr>
<td>DD2401</td>
<td>Neuroscience</td>
<td>7.5 hp</td>
<td>Second cycle</td>
</tr>
<tr>
<td>EQ1110</td>
<td>Continuous Time Signals and Systems</td>
<td>6.0 hp</td>
<td>First cycle</td>
</tr>
<tr>
<td>EQ1120</td>
<td>Discrete Time Signals and Systems</td>
<td>6.0 hp</td>
<td>First cycle</td>
</tr>
<tr>
<td>EQ1240</td>
<td>Signal Processing</td>
<td>7.5 hp</td>
<td>First cycle</td>
</tr>
<tr>
<td>IC1007</td>
<td>Human-computer Interaction: Principles and Design</td>
<td>7.5 hp</td>
<td>First cycle</td>
</tr>
</tbody>
</table>
ID1217 Concurrent Programming 7.5 hp First cycle
ID1354 Internet Applications 7.5 hp First cycle
ID2202 Compilers and Execution Environments 7.5 hp Second cycle
IE1202 Analog Electronics 7.5 hp First cycle
IE1304 Automatic Control 7.5 hp First cycle
IH1611 Semiconductor Devices 7.5 hp First cycle
IK1550 Internetworking 6.0 hp First cycle
IS2202 Computer Systems Architecture 7.5 hp Second cycle
IV1350 Object Oriented Design 7.5 hp First cycle
IV1351 Data Storage Paradigms 7.5 hp First cycle
ME2015 Project Management: Leadership and Control 6.0 hp Second cycle
ME2063 Team Leadership and Human Resource Management 6.0 hp Second cycle
SF1545 Numerical Methods, Basic Course 6.0 hp First cycle
SF1546 Numerical Methods, Basic Course 6.0 hp First cycle
SF1547 Numerical Methods, Basic Course 6.0 hp First cycle
SH1011 Modern Physics 7.5 hp First cycle

Supplementary information

Degree project 15 hp first level is compulsory during the spring term.

Year 5

Mandatory courses (7.5 Credits)

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course name</th>
<th>Credits Edu. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>II2202</td>
<td>Research Methodology and Scientific Writing</td>
<td>7.5 hp Second cycle</td>
</tr>
<tr>
<td></td>
<td>Or equivalent.</td>
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</tr>
</tbody>
</table>

Individual (IND)

International Profile, Japanese (INJA)

Year 1

Mandatory courses (6.0 Credits)

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course name</th>
<th>Credits Edu. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>DS1381</td>
<td>Elementary Japanese and Japanese Studies</td>
<td>6.0 hp First cycle</td>
</tr>
</tbody>
</table>

Year 2
Mandatory courses (6.0 Credits)

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course name</th>
<th>Credits</th>
<th>Edu. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>LS1383</td>
<td>Japanese A1</td>
<td>6.0 hp</td>
<td>First cycle</td>
</tr>
</tbody>
</table>

Year 3

Mandatory courses (9.0 Credits)

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course name</th>
<th>Credits</th>
<th>Edu. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>LS1385</td>
<td>Japanese A2</td>
<td>9.0 hp</td>
<td>First cycle</td>
</tr>
</tbody>
</table>

Year 4

Mandatory courses (9.0 Credits)

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course name</th>
<th>Credits</th>
<th>Edu. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>LS1386</td>
<td>Japanese B1</td>
<td>9.0 hp</td>
<td>First cycle</td>
</tr>
</tbody>
</table>

Supplementary information

Year 4 in the degree programme Information and Comunication Technology is equivalent to year 1 in a master’s programme.

For detailed information about the master’s programmes and the courses see Masters programmes (2 yrs).

Master, Kommunikationssystem/Communication Systems
http://www.kth.se/student/kurser/program/tcomm

Master, Datalogi / Computer Science
http://www.kth.se/student/kurser/program/tcscm

Master, Industriell ekonomi/Industrial Management
http://www.kth.se/student/kurser/program/tinem/

Master, Människa-datorinteraktion / Human-Computer Interaction
http://www.kth.se/student/kurser/program/thcim

Master, Maskininlärning / Machine Learning
http://www.kth.se/student/kurser/program/tmaim
Master, Medieteknik/Media Technology  
http://www.kth.se/student/kurser/program/tmetm

Master, Medicinsk teknik / Medical Engineering  
http://www.kth.se/student/kurser/program/tmlem

Master, Nätverks tjänster och system/Network Services and Systems  
http://www.kth.se/student/kurser/program/tnssm

Master, Programvaruteknik för distribuerade system/Software Engineering of Distributed Systems  
http://www.kth.se/student/kurser/program/tsedm

Master, Inbyggda system / Embedded Systems  
http://www.kth.se/student/kurser/program/tebsm

Master, Systemkonstruktion på kisel/System on Chip design  
http://www.kth.se/student/kurser/program/tskkm

Master, Trådlösa system/Wireless Systems  
http://www.kth.se/student/kurser/program/ttlsm

Year 5

Supplementary information

Year 5 in the degree programme Information and Comunication Technology is equivalent to year 2 in a master´s programme.

For detailed information about the master´s programmes and the courses see Masters programmes (2 yrs).

International Profile, Chinese (INKI)

Year 1

Mandatory courses (6.0 Credits)

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course name</th>
<th>Credits Edu. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>DS1391</td>
<td>Elementary Chinese and Chinese Studies</td>
<td>6.0 hp  First cycle</td>
</tr>
</tbody>
</table>

Year 2

Mandatory courses (6.0 Credits)

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course name</th>
<th>Credits Edu. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>LS1393</td>
<td>Chinese A1</td>
<td>6.0 hp  First cycle</td>
</tr>
</tbody>
</table>
### Year 3

**Mandatory courses (9.0 Credits)**

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course name</th>
<th>Credits Edu. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>LS1395</td>
<td>Chinese A2</td>
<td>9.0 hp  First cycle</td>
</tr>
</tbody>
</table>

### Year 4

**Mandatory courses (9.0 Credits)**

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course name</th>
<th>Credits Edu. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>LS1396</td>
<td>Chinese B1</td>
<td>9.0 hp  First cycle</td>
</tr>
</tbody>
</table>

**Supplementary information**

Year 4 in the degree programme Information and Comunication Technology is equivalent to year 1 in a master’s programme.

For detailed information about the master’s programmes and the courses see Masters programmes (2 yrs).

- Master, Kommunikationssystem/Communication Systems  
  [http://www.kth.se/student/kurser/program/tcomm](http://www.kth.se/student/kurser/program/tcomm)

- Master, Datalogi / Computer Science  
  [http://www.kth.se/student/kurser/program/tcscm](http://www.kth.se/student/kurser/program/tcscm)

- Master, Industriell ekonomi /Industrial Management  
  [http://www.kth.se/student/kurser/program/tilenm](http://www.kth.se/student/kurser/program/tilenm)

- Master, Människa-datorinteraktion / Human-Computer Interaction  
  [http://www.kth.se/student/kurser/program/thcim](http://www.kth.se/student/kurser/program/thcim)

- Master, Maskininlärning / Machine Learning  
  [http://www.kth.se/student/kurser/program/tmaim](http://www.kth.se/student/kurser/program/tmaim)

- Master, Medi teknik/Media Technology  
  [http://www.kth.se/student/kurser/program/tmetm](http://www.kth.se/student/kurser/program/tmetm)

- Master, Medicinsk teknik / Medical Engineering  
  [http://www.kth.se/student/kurser/program/tmlem](http://www.kth.se/student/kurser/program/tmlem)

- Master, Nätverks tjänster och system/Network Services and Systems  
  [http://www.kth.se/student/kurser/program/tnssm](http://www.kth.se/student/kurser/program/tnssm)

- Master, Programvaruteknik för distribuerade system/Software Engineering of Distributed Systems  
  [http://www.kth.se/student/kurser/program/tsedm](http://www.kth.se/student/kurser/program/tsedm)
Master, Inbyggda system / Embedded Systems  
http://www.kth.se/student/kurser/program/tebsm

Master, Systemkonstruktion på kisel/System on Chip design  
http://www.kth.se/student/kurser/program/tskkm

Master, Trådlösa system/Wireless Systems  
http://www.kth.se/student/kurser/program/tlism

**Year 5**

**Supplementary information**

Year 5 in the degree programme Information and Communication Technology is equivalent to year 2 in a master’s programme.

For detailed information about the master’s programmes and the courses see Masters programmes (2 yrs).

**International Profile (INT)**

**Year 1**

Conditionally elective courses

<table>
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<tr>
<th>Course code</th>
<th>Course name</th>
<th>Credits</th>
<th>Edu. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>DS1323</td>
<td>German, Advanced Beginners Level</td>
<td>7.5 hp</td>
<td>First cycle</td>
</tr>
<tr>
<td>DS1339</td>
<td>French, Advanced Beginners Level</td>
<td>7.5 hp</td>
<td>First cycle</td>
</tr>
<tr>
<td>DS1343</td>
<td>Spanish, Advanced Beginners Level</td>
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**Year 2**

Conditionally elective courses

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</thead>
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<td>LS1324</td>
<td>German B1</td>
<td>9.0 hp</td>
<td>First cycle</td>
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<tr>
<td>LS1334</td>
<td>French B1</td>
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<td>LS1348</td>
<td>Spanish B1</td>
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</table>

**Year 3**

Conditionally elective courses

Course
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<td>LS2326</td>
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<td>LS2336</td>
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<td>LS2349</td>
<td>Spanish B2</td>
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<td>Second cycle</td>
</tr>
</tbody>
</table>

**Year 4**

**Supplementary information**

Year 4 in the degree programme Information and Communication Technology is equivalent to year 1 in a master´s programme.

For detailed information about the master´s programmes and the courses see Masters programmes (2 yrs).

Master, Kommunikationssystem/Communication Systems
http://www.kth.se/student/kurser/program/tcomm

Master, Datalogi / Computer Science
http://www.kth.se/student/kurser/program/tcscm

Master, Industriell ekonomi /Industrial Management
http://www.kth.se/student/kurser/program/tinem/

Master, Människa-datorinteraktion / Human-Computer Interaction
http://www.kth.se/student/kurser/program/thcim

Master, Maskininlärning / Machine Learning
http://www.kth.se/student/kurser/program/tmaim

Master, Medieteknik/Media Technology
http://www.kth.se/student/kurser/program/tmetm
Master, Medicinsk teknik / Medical Engineering
http://www.kth.se/student/kurser/program/tmlem

Master, Nätverks tjänster och system/Network Services and Systems
http://www.kth.se/student/kurser/program/tnssm

Master, Programvaruteknik för distribuerade system/Software Engineering of Distributed Systems
http://www.kth.se/student/kurser/program/tsedm

Master, Inbyggd system / Embedded Systems
http://www.kth.se/student/kurser/program/tebsm

Master, Systemkonstruktion på kisel/System on Chip design
http://www.kth.se/student/kurser/program/tskkm

Master, Trådlösa system/Wireless Systems
http://www.kth.se/student/kurser/program/ttlsm
Year 5

Supplementary information

Year 5 in the degree programme Information and Communication Technology is equivalent to year 2 in a master’s programme.

For detailed information about the master’s programmes and the courses see Masters programmes (2 yrs).
Appendix 2: Specialisations

Degree Programme in Information and Communication Technology (CINTE), Programme syllabus for studies starting in autumn 2012

Individual (IND)

International Profile, Japanese (INJA)

To study the IT-programme with an international specialization implies that one reads language courses in parallel with other courses and that the student study abroad for one year exchange period in a country where the language in question is spoken and is used as language of instruction at the receiving university.

For the Asian languages the following apply. In addition to the regular courses of the program there are a total of 30 HE credits courses in language and culture distributed as 6 + 6 + 9 + 9 HE credits over the first four years of the education. School year 5 is studied abroad divided into 30 HE credits of language and culture courses, and 30 HE credits degree project.

Since the courses in language and culture exceed the amount of optional courses, an individual study plan is made for these students.

For students on the international specialisations, there is no space for completely optional courses. Students on other specialisations have about 30 HE credits optional courses.

International Profile, Chinese (INKI)

To study the IT-programme with an international specialization implies that one reads language courses in parallel with other courses and that the student study abroad for one year exchange period in a country where the language in question is spoken and is used as language of instruction at the receiving university.

For the Asian languages the following apply. In addition to the regular courses of the program there are a total of 30 HE credits courses in language and culture distributed as 6 + 6 + 9 + 9 HE credits over the first four years of the education. School year 5 is studied abroad divided into 30 HE credits of language and culture courses, and 30 HE credits degree project.

Since the courses in language and culture exceed the amount of optional courses, an individual study plan is made for these students.

For students on the international specialisations, there is no space for completely optional courses. Students on other specialisations have about 30 HE credits optional courses.
International Profile (INT)

To study the IT-programme with an international specialization implies that one reads language courses in parallel with other courses and that the student study abroad for one year exchange period in a country where the language in question is spoken and is used as language of instruction at the receiving university.

For the European languages specializations 24 HE credits courses in language and culture are read in addition to the regular courses. The language courses are distributed as 7,5 + 7,5 + 9 HE credits over the first three years of the education. Year 4 of the education is studied abroad with 15 HE credits language and 45 HE credits courses within the chosen specialization (Master). In August, the summer between the third and fourth year of the education, a compulsory 4,5 HE culture course is read. The degree project is normally performed in Sweden.

Since the courses in language and culture exceed the amount of optional courses, an individual study plan is made for these students.

For students on the international specialisations, there is no space for completely optional courses.

Students on other specialisations have about 30 HE credits optional courses.