



Programme syllabus

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

Degree Programme in Computer Science and Engineering 300 credits

Civilingenjörsutbildning i datateknik

Valid for students admitted to the education from autumn 09 (HT - Autumn term; VT - Spring term).

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

Programme objectives

Computer Science and Engineering is the most influential factor on society and will remain so during the foreseeable future. An essential usage of Computer Science and Engineering is the efficiency of resource usage and communication in society for a sustainable development.

The Master of Science in Computer Science and Engineering programme at KTH aims to give the student the prerequisites and abilities to participate and lead work with appraisal, development and influence of new Computer Science and Engineering technologies.

Knowledge and understanding

The programme has the goal that a Master of Computer Science and Engineering should:

- show fundamental knowledge within Computer Science and Engineering
- show fundamental knowledge in math. With this, the ability to explain and carry out mathematical reasoning and define and analyze mathematical models.
- show knowledge in human and natural sciences, especially such knowledge which has consequences for computerized systems' design.
- show knowledge about industrial entrepreneurship and relevant legislation.

Skills and abilities

The programme has the goal that a Master of Computer Science and Engineering should:

- have prerequisites and abilities to participate in and develop the practices which are applied in industry, administration, and academic research.
- have the ability to independently define and solve computer-related constructions problems.
- have the prerequisites for successful work in international and multidisciplinary project groups which consist of people from both technical and non-technical backgrounds. This includes the ability to orally, and in writing, present as well as argue in Swedish and English.

Ability to make judgements and adopt a standpoint

The programme has the goal that a Master of Computer Science and Engineering should:

- Independently analyze and adopt a standpoint on economical, societal, environment-related and ethical consequences of computer science applications, and to design systems concerning this.
- Through self-development, retain one's professional abilities during a professional career.
- Follow the discussion with technology in society and promote this.

A full description of degree requirements for the Master of Science in Engineering degree, Bachelor degree, and master's degrees can be found in KTHs local degree ordinance.

<http://www.kth.se/info/kth-handboken/II/19/1x.html>

Extent and content of the programme

The Master of Computer Science and Engineering is composed of 300 higher education credits, which, at normal study speed, corresponds to 5 years of full-time study (10 terms).

The first three years of the programme (180 higher education credits) is in the first level and can, if the student applies for it, can be finished with a Bachelor degree of computer Science and Engineering. The last two years are mainly in the second level (120 higher education credits).

Programme Specialisations*

Autonomous Systems
Calculation Technology
Biomedical Technology
Computer Security
Computer Systems Technology
Distributed Systems
Industrial information and control systems
Informations Systems and Database Technology
Intelligent interactive systems
Internet Technology
Communications Systems
Human-Computer Interaction
Program Systems Technology
Language Technology
Theoretical Computer Science

* The list of specialisations is subject to change. Updated lists of all specialisations can be found in the study hand book for the respective study year.

In addition, there are three international specialisation in the Computer Science programme within language: Chinese, Japanese and a specialisation for one of the european languages: French Spanish, or German.

Application to this programme is done in addition to the application to the programme.

Language of Instruction

The language of instruction, during the first three years of the programme is mostly Swedish; although, certain English literature will be used. The concluding years' courses are given mainly in English; however, there are some courses in Swedish. The language which is used for each course can be found in the Study Handbook.

Eligibility and selection

In order to be accepted to the Master of Computer Science and Engineering programme the basic eligibility requirements as well as the following requirements must be met:

Mathematics D

Physics B

Chemistry A

All with at least a grade of G.

For eligibility requirements and selection guidelines, see KTH's admission policy
<http://intra.kth.se/regelverk/utbildning-forskning/grundutbildning/antagning/1.27186>

Implementation of the education

Structure of the education

The programme plan for the Master of Computer Science and Engineering partly consists of obligatory courses in the base block in study year 1 and 2, and part of study year 3. In the spring of study year 3, the desired specialization is chosen. The entirety of study year 4 and half of study year 5 consist of courses in the second level from the specialization, corresponding to at least 37.5 higher education credits. There even exists space for optional courses in study years 4 and 5. The programme is concluded in the spring term of study year 5 with a project work worth 30 higher education credits.

The specialisation in Language Engineering is special because it begins in the fall term in study year 2 with the course Linguistics I which is taken at SU during the fall term and replaces three obligatory courses and one conditionally optional course. (See appendix 2)

The programme is designed in such a manner that the student studying after three years will have the possibility to take a degree of Bachelor in order to, if desired, continue his/her studies in another program at KTH or another University in Sweden, or abroad.

International specialisation

The programme plan for the Master of Computer Science in Engineering with the international specialisation starts with obligatory courses in the base block in study years 1-2 with courses within the chosen specialisation language. In study year 3, obligatory courses and courses in the chosen specialisation language are taken. In study year 4, one of the Computer Science specialisations is taken. Beyond the specialisation, those who have chosen the European languages take more language courses, and those who have chosen Japanese or Chinese take optional courses. In study year 5, in the fall term, those who have chosen Japanese or Chinese and those who have chosen the European languages will take optional courses. The programme is concluded in the spring term in study year 5 with a degree project consisting of 30 higher education credits.

The possibility to spend two study terms abroad at one of KTH's partner universities within the chosen language is possible through this programme. These terms are allocated to the portion of the programme which is given on the second level.

The international specialisation is special because the language courses are started in the first year and are taken, thereafter, continuously throughout the programme. In total, 60 higher education credits in Japanese or Chinese are taken. Within the European languages, 40 higher education credits within one of the languages: French, Spanish, or German are taken. Compared to the normal Computer Science programme, three courses are omitted for those taking the international specialisation: Communication in Engineering sciences, Physics and a conditionally optional course.

The study year for KTH's undergraduate programme is 40 weeks, divided into four periods. The study periods correspond to about seven weeks. Each study period is followed by an examination period.

For details about the study years' structure, see the Student Web and the KTH-Handbook
<http://www.kth.se/student/schema/1.1007>
<http://www.kth.se/info/kth-handboken/II/4/2.html>

Courses

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

The programme consists of obligatory, conditionally eligible and optional courses. The obligatory courses are defined for every study year and specialization in the teaching and time schedule. The different courses' goals, prerequisites, contents and examination requirements can be found in the respective course plans.

In study year three, there is allocated space for conditionally eligible courses and optional courses within the Computer Science and Engineering programme. Only under certain circumstances can optional courses be taken earlier.

Optional courses can be chosen from KTH's course selection for Master of Science in Engineering programmes. Even courses from other universities/higher education institutions can be recognized for credit, if the degree requirements are fulfilled.

For optional courses, the following restrictions apply:

- Optional courses can not be taken in study year 1
- Only under certain circumstances can optional courses be taken in study year 2.
- The number of higher education credits which can be taken per term can be limited.

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

Enrolment notification and term registration

Before every term (1-15th May and 1-15 November), an obligatory term enrolment must be submitted via KTH's web on "My pages" to the study guidance at the programme office for Computer Science and Engineering, office CSC.

Your enrolment notification constitutes the foundation for the office's planning and that you are registered for the programme. Term registration is required in order for your study results to be registered and for CSN to distribute student aid.

Temporary Postponement

Temporary postponement means that the student does not participate in the programme during at least one study period. If temporary postponement is approved, the student has the right to return to the studies at a pre-determined point in time. During the temporary postponement, the student is able to complete and participate in examinations in incomplete courses.

Notification of temporary postponement is done on a form which is submitted to the programme office which processes it. When the student intends to resume the studies, it is necessary for the student to submit a separate notification.

Course Selection

Application to conditionally eligible and optional courses

The student is responsible from study year 3 and on to apply to those conditionally eligible and optional courses he/she wishes to take in the next term. This even applies to those obligatory and conditionally eligible courses which are included in the chosen specialization which he/she is studying. Decisions about acceptance to courses are decided by the programme office. Consideration is taken to economic and physical space limitations. The application to optional courses must be submitted to the CSC office, at the latest:

- 15th of May for the fall term
- 15th of November for the spring term.

The application is done in the web-form on “My pages”.

Applications which are submitted after the deadline are only taken into consideration with regards to space considerations. Before course selection of language courses, a test must be taken to determine the appropriate level study.

Course notification of the obligatory courses happens, in most cases, automatically (through the office). Separate notification is required for a student which studies individual specializations and for a student who chooses from alternatively obligatory courses or the corresponding.

Course registration

Registration of a course requires that the course has been selected in Ladok. The course selection is done whether via the course selection routine on the web, or via the students programme office. Registration of a course is done by the course’s department.

The student must, at the first scheduled lecture, register him/herself in the course. Course registration in both obligatory and optional courses must be done individually (at the department). If the student registers a course and then decides to not continue with the course, then the student must notify the corresponding department as soon as possible.

Conditions for being promoted to the next level

The following promotion requirements apply in order to participate in the next level of the education.

Requirements for promotion from grade 1 to grade 2:

A total of at least 45 higher education credits from study year 1 to be completed.

Requirements for promotion from grade 2 to grade 3:

A total of at least 90 higher education credits from study years 1 and 2 must be completed at least 50 higher education credits from study year 1.

Requirements for promotion from grade 3 to grade 4:

A total of at least 150 higher education credits from study years 1-3 must be completed, and at least 110 higher education credits from study year 1-2, and bachelor's work.

Requirements for promotion from grade 4 to grade 5:

In addition to what applies for promotion to grade 4, at least 45 higher education credits from study year 4 must be completed.

Students who have not fulfilled the above requirements must consult with their study advisor to construct an individual study plan for the continuation of studies.

Specialisation Selection

The first opportunity for course selection occurs in the spring term in study year 3. At this time you choose those obligatory and conditionally optional courses which are in the specialisation you have chosen, as well as those optional courses you possibly wish to take the following term.

Regarding course selection, you must turn in a form "preliminary specialisation choice" which can be found on the CSC office's website.

In a few courses, the number of places is limited and selection is done based on merits such as grades and points for the student who applied before the deadline. Selection is done by the corresponding department.

Recognition of previous academic studies

Students have the opportunity to apply for recognition of their results from the course or courses at another college / university within or outside the country. The form is available on the KTH website. The application for accreditation submitted to the study advisor at the CSC.

The complete KTH policy for recognition of previous academic studies is found in the KTH-handbook.

<http://intra.kth.se/regelverk/utbildning-forskning/grundutbildning/prestationer/1.27200>

Studies abroad

Students at the Master of Science in Engineering in Computer Science and Engineering programme have the opportunity to study one or two semesters abroad through agreements KTH has with

universities within and outside the EU. Exchange studies is appropriate in the fourth or fifth grade. It is also possible to make the thesis abroad.

For more information contact the internationalcoordinator at CSC.

Degree project

Degree project, first level

In the programme a project work is done in grades 3, a thesis for the technology candidate which is a course of 15 higher education credits.

KTH comprehensive rules and guidelines for thesis 15 higher education credits for Degree of Bachelor of Science 180 higher education credits, and grading of the thesis is in the KTH-Handbook.

<http://intra.kth.se/regelverk/utbildning-forskning/grundutbildning/examensarbete/1.27211>

Degree project, advanced level

In the programme a project work is done, a thesis for the Degree of Master of Science in Engineering/Degree of Master of Science (Two Years) which is a course of 30 higher education credits.

KTH comprehensive rules and guidelines for thesis 30 higher education credits for Degree of Master of Science in Engineering, Degree Programme in Computer Science and Technology 300 higher education credits, and grading of the thesis is in the KTH-Handbook.

<http://intra.kth.se/regelverk/utbildning-forskning/grundutbildning/examensarbete/1.27205>

Degree project at advanced level for the Degree of Master of Science in Engineering can be completed in exam working topics:

Computer science, Biomedical engineering, Human-computer interaction, Media technology, Numerical analysis, Musical acoustics, Electroacoustics, Speech communication, Computer and systems sciences, Teleinformatics and Informatics Industrial control systems.

Other degree project topics may be considered upon application. For more information, contact the study advisor at the CSC.

Degree

Application for graduation

Students have the opportunity to apply for the following degrees: Degree of Bachelor of Science and Degree of Master of Science in Engineering, Degree Programme in Computer Science. Students are also able to request for Degree of Master of Science (Two Years) if the requirements of this qualification is met.

Instructions for application for examination is made available on the KTH student web.

Conditions for the Degree of Bachelor of Science 180 higher education credits

The Degree of Bachelor of Science is received if the student applies for graduation after the completion of the grade 3 and fulfills the national degree requirements and complete all courses within the program corresponding to 180 higher education credits, of which

- mathematical-natural scientific courses of at least 25 higher education credits,
- at least 90 higher education credits (including 15 higher education credits of degree project work) with the gradual deepening of the main field of education.

Degree Name

Teknologie kandidatexamen
Degree of Bachelor of Science

Conditions for the Degree of Master of Science in Engineering 300 higher education credits

The Master of Science in Engineering degree is received after completing the programme. The programme is formed so that the student fulfills the national degree requirements and has completed courses corresponding to 300 higher education credits, of which

- mathematical-natural scientific courses of at least 45 higher education credits , and, in addition, at least 180 higher education credits (including 30 higher education credits of degree project work) in the subjects central to the technical area
- at least 90 higher education credits in the second level, whereof at least 60 higher education credits (including 30 higher education credits of degree project work) in the subjects central to the technical area

Degree Name

Civilingenjörsexamen
Degree of Master of Science in Engineering, Degree Programme in Computer Science and Technology

Conditions for Degree of Master of Science (Two Years) 300 higher education credits.

See guidelines in KTH -handbook (see link below).

Degree Name

Teknologie masterexamen
Degree of Master of Science (Two Years)

Reference to KTH guidelines (KTH-Handbook)

Local degree ordinance for degrees at first level and advanced level.

<http://intra.kth.se/regelverk/utbildning-forskning/grundutbildning/examina/1.27227>

Appendix 1 - Course list

Appendix 2 - Programme syllabus descriptions



Appendix 1: Course list

Degree Programme in Computer Science and Engineering (CDATE)

General courses

Year 1

Mandatory courses (61.5 Credits)

Code	Name	Credits	Edu. level
DD1340	Introduction to Computer Science	18.0 hp	First cycle
DH1600	Communication in Engineering Sciences	7.5 hp	First cycle
SF1604	Linear Algebra	7.5 hp	First cycle
SF1612	Mathematics, Basic Course	6.0 hp	First cycle
SF1625	Calculus in One Variable	7.5 hp	First cycle
SF1626	Calculus in Several Variables	7.5 hp	First cycle
SK1131	Physics: Waves and Particles	7.5 hp	First cycle

Optional courses

Code	Name	Credits	Edu. level
SF1611	Introductory Course in Mathematics I	1.5 hp	First cycle

Supplementary information

Batch 09 take the first study year during the academic year 2009/10.

Year 2

Mandatory courses (61.0 Credits)

Code	Name	Credits	Edu. level
DD1350	Logic for Computer Science	6.0 hp	First cycle
DD1361	Programming Paradigms	7.5 hp	First cycle
DD1368	Database Technology	6.0 hp	First cycle
DD1391	Programme Integrating Course in Computer Science Engineering <i>3 cr belong to study year 2; distribution over the periods: 0,1; 0,3; 0,6; 2,0</i>	4.0 hp	First cycle
DH1620	Human-Computer Interaction, Introductory Course	6.0 hp	First cycle
DN1241	Numerical Methods, Basic Course III	7.5 hp	First cycle
IS1500	Computer Organization and Components	9.0 hp	First cycle
ME1010	Organization and Knowledge-Intensive Work	6.0 hp	First cycle
SF1901	Probability Theory and Statistics	6.0 hp	First cycle
SF1904	Markov Processes, Basic Course	3.0 hp	First cycle

Supplementary information

Batch 09 take the second study year during the academic year 2011/12.

Language technology specialization

Students may choose a language technology specialization and then take three courses at Stockholm university during the fall: LIN111 Introduction to linguistics, LIN112 The Architecture of Language 1 and LIN113 The Architecture of Language 2. These students do not take DD1350, DD1361 and DN1241 during the second study year.

The rest of the students

Year 3

Mandatory courses (52.0 Credits)

Code	Name	Credits	Edu. level
DD1352	Algorithms, Data Structures and Complexity	9.0 hp	First cycle
DD1365	Software Engineering <i>Note the eligibility. Must be taken the same academic year as DD143X</i>	6.0 hp	First cycle
DD1391	Programme Integrating Course in Computer Science Engineering <i>1 cr belongs to study year 3; distribution over the periods: 0,1; 0,1; 0,2; 0,6</i>	4.0 hp	First cycle
DD143X	Degree Project in Computer Science, First Cycle <i>Must be taken the same academic year as DD1365</i>	15.0 hp	First cycle
DD2395	Computer Security	6.0 hp	Second cycle
SF1631	Discrete Mathematics	12.0 hp	First cycle

Optional courses

Code	Name	Credits	Edu. level
AK1202	History of Science and Technology	7.5 hp	First cycle
DD1395	In-depth Essay in Computer Science <i>Gives deeper knowledge and can be taken any period</i>	3.0 hp	First cycle
DD2372	Automata and Languages <i>Track course in the master's program in Computer science</i>	6.0 hp	Second cycle
DD2388	Program System Construction using .NET Framework <i>Track course in the master's program in Computer science</i>	7.5 hp	Second cycle
DD2390	Internet Programming <i>Track course in the master's program in Computer science</i>	6.0 hp	Second cycle
DD2432	Artificial Neural Networks and Other Learning Systems <i>Track course in the master's programs in Computer science and Machine learning</i>	6.0 hp	Second cycle
DD2439	Artificial Intelligence and Multi-agent Systems, Project Course <i>Continued in p1 & p2. Track course in the master's programs in Computer science and Machine learning</i>	21.0 hp	Second cycle
DD2441	Seminars on Theoretical Computer Science <i>Track course in the master's program in Computer science</i>	6.0 hp	Second cycle

DD2448	Foundations of Cryptography <i>Track course in the master's program in Computer science</i>	7.5 hp	Second cycle
DD2457	Program Semantics and Analysis <i>Track course in the master's program in Computer science</i>	6.0 hp	Second cycle
DD2460	Software Safety and Security	7.5 hp	Second cycle
DD2475	Information Retrieval <i>Track course in the master's programs in Computer science and Machine learning</i>	9.0 hp	Second cycle
DH2323	Computer Graphics and Interaction <i>Track course in the master's programs in Human computer interaction</i>	6.0 hp	Second cycle
DH2641	Interaction Programming <i>Compulsory for two tracks in the master's program in Human computer interaction</i>	6.0 hp	Second cycle
DS1364	Rhetoric - the Art of Persuasion	7.5 hp	First cycle
EQ1100	Signals and Systems, part II <i>Prerequisite for some master's programs</i>	7.5 hp	First cycle
ID1217	Concurrent Programming <i>Track course in the master's program in Computer science</i>	7.5 hp	First cycle
ID2200	Operating Systems <i>Compulsory for master's program in Computer science. Prerequisite for Network services and systems</i>	6.0 hp	Second cycle
IK1550	Internetworking <i>DD2393 or this course is prerequisite for master in Communication systems</i>	6.0 hp	First cycle
ME1001	Industrial Management, Basic Course <i>Prerequisite for master in Industrial management</i>	6.0 hp	First cycle
ME1002	Industrial Management, Basic Course	6.0 hp	First cycle
ME2015	Project Management: Leadership and Control <i>Prerequisite for master in Industrial management</i>	6.0 hp	Second cycle
ME2063	Team Leadership and Human Resource Management <i>Prerequisite for master in Industrial management</i>	6.0 hp	Second cycle
MJ2613	Sustainable Development	6.0 hp	Second cycle
SF1634	Differential Equations II <i>Prerequisite for master in Scientific Computing and in Mathematics</i>	9.0 hp	First cycle
SF1635	Signals and Systems, part I <i>Prerequisite for several master's programmes given by EES and ICT</i>	7.5 hp	First cycle
SF1649	Vector Analysis and Complex Functions	7.5 hp	First cycle

SG1102	Mechanics, Smaller Course <i>This course or equivalent is prerequisite for master in Scientific computing</i>	6.0 hp	First cycle
--------	--	--------	-------------

Supplementary information

Batch 09 take the third study year during 2011/12.

Below is a list of elective courses. Other courses may be chosen.

Be aware that for some of the master's programs that you can choose for years 4–5 you must choose specific courses to fulfill the eligibility requirements.

Year 4

Supplementary information

Batch 09 take the fourth study year during 2012/13.

During study years 4 and 5 the students follow a master program of their choice. For each year a list of master programs that may be chosen is established.

Each master's program has eligibility requirements that must be fulfilled.

For some master's programs special requirements have to be fulfilled.

Master programs to choose between

Batch 09 may choose between the following master's programs:

- Computer science
- Machine learning
- Human-computer interaction
- Scientific computing
- Network systems and services
- Systems, control and robotics
- Wireless systems
- Embedded systems
- Communication systems
- Software engineering of distributed systems

- System on chip design, track Embedded System-on-Chip Platforms
- Industrial management
- Mathematics, track Mathematics may not be chosen
- Medical engineering

Students may also choose one of the following Erasmus Mundus programs and apply for them as any student outside of KTH (seat is not guaranteed).

- Computer simulation for science and engineering
- Systems biology

Special conditions for the master of science of engineering degree

Degree project (only for students choosing a master's program outside of the CSC school)

For a student who within the selected Master program does a degree project examined by any other school than CSC, the program director for the Master of science of engineering program in Computer Science and Engineering must approve the specification and the final report to certify the relevance and quality of the degree project in relation to the program. The student is responsible for delivering the specification as well as the final report to the program director.

Requirements for certain choices of elective courses

Industrial management

In order to get a degree of master of science in engineering in Computer science and engineering the student must have at least 90 credits at second level, of which at least 60 credits (including a 30-credit degree project) must be within the framework of the engineering area. Since the courses in industrial management are not within the framework you must choose 30 credits within the framework and also choose a task for the degree project that makes makes the degree project be within the framework.

Mathematics

The track mathematics may not be chosen.

Medical engineering

In order to get a degree of master of science in engineering in Computer science and engineering the student must have at least 90 credits at second level, of which at least 60 credits (including a 30-credit degree project) must be within the framework of the engineering area. Since the courses in medical engineering are not within the framework you must choose 30 credits within the framework and also choose a task for the degree project that makes makes the degree project be within the framework.

System on chip design

The track Embedded System-on-Chip Platforms must be chosen.

Year 5

Supplementary information

Batch 09 take the fifth study year during 2013/14.

During study years 4 and 5 the students follow a master program of their choice.

Not only the requirements set by the selected Master program to begin the degree project apply but also the following: The student must have 240 ECTS credits from completed courses within the Master of science of engineering program and may have at the most three unfinished compulsory courses from study years 1–3.

International Profile (INT)

Year 1

Mandatory courses (54.0 Credits)

Code	Name	Credits	Edu. level
DD1340	Introduction to Computer Science	18.0 hp	First cycle
SF1604	Linear Algebra	7.5 hp	First cycle
SF1612	Mathematics, Basic Course	6.0 hp	First cycle
SF1625	Calculus in One Variable	7.5 hp	First cycle
SF1626	Calculus in Several Variables	7.5 hp	First cycle
SK1131	Physics: Waves and Particles	7.5 hp	First cycle

Optional courses

Code	Name	Credits	Edu. level
SF1611	Introductory Course in Mathematics I	1.5 hp	First cycle

Conditionally elective courses

Code	Name	Credits	Edu. level
DS1323	German, Advanced Beginners Level	7.5 hp	First cycle
DS1339	French, Advanced Beginners Level	7.5 hp	First cycle
DS1343	Spanish, Advanced Beginners Level	7.5 hp	First cycle

Supplementary information

Batch 09 take the first study year during the academic year 2009/10.

Year 2

Mandatory courses (47.5 Credits)

Code	Name	Credits	Edu. level
DD1361	Programming Paradigms	7.5 hp	First cycle
DD1368	Database Technology	6.0 hp	First cycle
DD1391	Programme Integrating Course in Computer Science Engineering <i>3 cr belong to study year 2</i>	4.0 hp	First cycle
DH1620	Human-Computer Interaction, Introductory Course	6.0 hp	First cycle
IS1500	Computer Organization and Components	9.0 hp	First cycle
ME1010	Organization and Knowledge-Intensive Work	6.0 hp	First cycle
SF1901	Probability Theory and Statistics	6.0 hp	First cycle
SF1904	Markov Processes, Basic Course	3.0 hp	First cycle

Conditionally elective courses

Code	Name	Credits	Edu. level
DD1350	Logic for Computer Science	6.0 hp	First cycle
DN1241	Numerical Methods, Basic Course III	7.5 hp	First cycle
DS1324	Technical German, Intermediate Level	9.0 hp	First cycle
DS1334	Technical French, Intermediate Level	9.0 hp	First cycle
DS1348	Technical Spanish, Intermediate Level	9.0 hp	First cycle

Supplementary information

Batch 09 take the second study year during 2010/11.

A course in the language chosen must be taken.

At least one of the courses DN1241 Numerical methods and DD1350 Logic must be taken. If both are taken then DD2395 Computer security can be skipped in study year 3.

Year 3

Mandatory courses (52.0 Credits)

Code	Name	Credits	Edu. level
DD1352	Algorithms, Data Structures and Complexity	9.0 hp	First cycle
DD1365	Software Engineering <i>Note the eligibility. Must be taken the same academic year as DD143X</i>	6.0 hp	First cycle
DD1391	Programme Integrating Course in Computer Science Engineering <i>1 cr belong to study year 3</i>	4.0 hp	First cycle
DD143X	Degree Project in Computer Science, First Cycle <i>Must be taken the same academic year as DD1365</i>	15.0 hp	First cycle
DD2395	Computer Security <i>May be skipped if both DN1241 and DD1350 were taken during study year 2</i>	6.0 hp	Second cycle
SF1631	Discrete Mathematics	12.0 hp	First cycle

Conditionally elective courses

Code	Name	Credits	Edu. level
DS2326	Technical German, Advanced Level <i>Same language as during study years 1&2</i>	9.0 hp	Second cycle
DS2336	Technical French, Advanced Level <i>Same language as during study years 1&2</i>	9.0 hp	Second cycle
DS2349	Technical Spanish, Advanced Level <i>Same language as during study years 1 & 2</i>	9.0 hp	Second cycle

Supplementary information

Batch 09 take the third study year during 2011/12.

For suggestions for elective courses, please see the common Computer science and engineering program.

Year 4

Supplementary information

Batch 09 take the fourth study year during 2012/13.

During study years 4 and 5 the students follow a master program of their choice.

Since the students on the international profile take language courses during study years 4-5 the choice of master programs is more limited. The student has three possibilities:

1. Take the master program in Computer science that offers a sufficient number of credits for elective courses.
2. In consultation with the program co-ordinator and the international co-ordinator investigate the possibilities of choosing another master program.
3. In consultation with the program co-ordinator and the international co-ordinator skip some of the mandatory courses from the selected master program and only receive the degree of Master of Science in Engineering degree (civilingenjör) and not the degree of Master of Science.

Year 5

Supplementary information

Batch 09 take the fifth study year during 2013/14.

During study years 4 and 5 the students follow a master program of their choice.

Not only the requirements set by the selected Master program to begin the degree project apply but also the following: The student must have 240 ECTS credits from completed courses within the Master of science of engineering program and may have at the most three unfinished compulsory courses from study years 1–3.

International Profile, Japanese (JAP)

Year 1

Mandatory courses (60.0 Credits)

Code	Name	Credits	Edu. level
DD1340	Introduction to Computer Science	18.0 hp	First cycle
DS1381	Elementary Japanese and Japanese Studies	6.0 hp	First cycle
SF1604	Linear Algebra	7.5 hp	First cycle
SF1612	Mathematics, Basic Course	6.0 hp	First cycle
SF1625	Calculus in One Variable	7.5 hp	First cycle
SF1626	Calculus in Several Variables	7.5 hp	First cycle
SK1131	Physics: Waves and Particles	7.5 hp	First cycle

Optional courses

Code	Name	Credits	Edu. level
SF1611	Introductory Course in Mathematics I	1.5 hp	First cycle

Supplementary information

Batch 09 take the first study year during the academic year 2009/10.

Year 2

Mandatory courses (53.5 Credits)

Code	Name	Credits	Edu. level
DD1361	Programming Paradigms	7.5 hp	First cycle
DD1368	Database Technology	6.0 hp	First cycle
DD1391	Programme Integrating Course in Computer Science Engineering <i>3 cr belong to study year 2</i>	4.0 hp	First cycle
DH1620	Human-Computer Interaction, Introductory Course	6.0 hp	First cycle
DS1383	Japanese, Advanced Beginners Level I	6.0 hp	First cycle
IS1500	Computer Organization and Components	9.0 hp	First cycle
ME1010	Organization and Knowledge-Intensive Work	6.0 hp	First cycle
SF1901	Probability Theory and Statistics	6.0 hp	First cycle
SF1904	Markov Processes, Basic Course	3.0 hp	First cycle

Conditionally elective courses

Code	Name	Credits	Edu. level
DD1350	Logic for Computer Science	6.0 hp	First cycle
DN1241	Numerical Methods, Basic Course III	7.5 hp	First cycle

Supplementary information

Batch 09 take the second study year during 2010/11.

At least one of the courses DN1241 Numerical methods and DD1350 Logic must be taken. If both are taken then DD2395 Computer security can be skipped in study year 3.

Year 3

Mandatory courses (61.0 Credits)

Code	Name	Credits	Edu. level
DD1352	Algorithms, Data Structures and Complexity	9.0 hp	First cycle
DD1365	Software Engineering <i>Note the eligibility. Must be taken the same academic year as DD143X</i>	6.0 hp	First cycle
DD1391	Programme Integrating Course in Computer Science Engineering <i>1 cr belongs to study year 3</i>	4.0 hp	First cycle
DD143X	Degree Project in Computer Science, First Cycle <i>Must be taken the same academic year as DD1365</i>	15.0 hp	First cycle
DD2395	Computer Security <i>May be skipped if both DN1241 and DD1350 were taken during study year 2</i>	6.0 hp	Second cycle
DS1385	Japanese, Advanced Beginners Level II	9.0 hp	First cycle
SF1631	Discrete Mathematics	12.0 hp	First cycle

Conditionally elective courses

Code	Name	Credits	Edu. level
DN1241	Numerical Methods, Basic Course III	7.5 hp	First cycle

Supplementary information

Batch 09 take the third study year during the academic year 2011/12.

For suggestions for elective courses, please see the common Computer science and engineering program.

Year 4

Mandatory courses (9.0 Credits)

Code	Name	Credits	Edu. level
DS1386	Japanese, Intermediate Level	9.0 hp	First cycle

Supplementary information

Batch 09 take the fourth study year during the academic year 2012/13.

During study years 4 and 5 the students follow a master program of their choice.

Since the students on the international profile take language courses during study years 4-5 the choice of master programs is more limited. The student has three possibilities:

1. Take the master program in Computer science that offers a sufficient number of credits for elective courses.
2. In consultation with the program co-ordinator and the international co-ordinator investigate the possibilities of choosing another master program.

In consultation with the program co-ordinator and the international co-ordinator skip some of the mandatory courses from the selected master program and only receive the degree of Master of Science in Engineering degree (civilingenjör) and not the degree of Master of Science.

Year 5

Supplementary information

Batch 09 take the fifth study year during the academic year 2013/14.

During study years 4 and 5 the students follow a master program of their choice.

Not only the requirements set by the selected Master program to begin the degree project apply but also the following: The student must have 240 ECTS credits from completed courses within the Master of science of engineering program and may have at the most three unfinished compulsory courses from study years 1–3.

International Profile, Chinese (KIN)

Year 1

Mandatory courses (60.0 Credits)

Code	Name	Credits	Edu. level
DD1340	Introduction to Computer Science	18.0 hp	First cycle
DS1391	Elementary Chinese and Chinese Studies	6.0 hp	First cycle
SF1604	Linear Algebra	7.5 hp	First cycle
SF1612	Mathematics, Basic Course	6.0 hp	First cycle
SF1625	Calculus in One Variable	7.5 hp	First cycle
SF1626	Calculus in Several Variables	7.5 hp	First cycle
SK1131	Physics: Waves and Particles	7.5 hp	First cycle

Optional courses

Code	Name	Credits	Edu. level
SF1611	Introductory Course in Mathematics I	1.5 hp	First cycle

Supplementary information

Batch 09 take the first study year during the academic year 2009/10.

Year 2

Mandatory courses (53.5 Credits)

Code	Name	Credits	Edu. level
DD1361	Programming Paradigms	7.5 hp	First cycle
DD1368	Database Technology	6.0 hp	First cycle
DD1391	Programme Integrating Course in Computer Science Engineering <i>3 cr belong to study year 2</i>	4.0 hp	First cycle
DH1620	Human-Computer Interaction, Introductory Course	6.0 hp	First cycle
DS1393	Chinese, Advanced Beginners Level I	6.0 hp	First cycle
IS1500	Computer Organization and Components	9.0 hp	First cycle
ME1010	Organization and Knowledge-Intensive Work	6.0 hp	First cycle
SF1901	Probability Theory and Statistics	6.0 hp	First cycle
SF1904	Markov Processes, Basic Course	3.0 hp	First cycle

Conditionally elective courses

Code	Name	Credits	Edu. level
DD1350	Logic for Computer Science	6.0 hp	First cycle
DN1241	Numerical Methods, Basic Course III	7.5 hp	First cycle

Supplementary information

Batch 09 take the second study year during 2010/11.

At least one of the courses DN1241 Numerical methods and DD1350 Logic must be taken. If both are taken then DD2395 Computer security can be skipped in study year 3.

Year 3

Mandatory courses (61.0 Credits)

Code	Name	Credits	Edu. level
DD1352	Algorithms, Data Structures and Complexity	9.0 hp	First cycle
DD1365	Software Engineering <i>Note the eligibility. Must be taken the same academic year as DD143X</i>	6.0 hp	First cycle
DD1391	Programme Integrating Course in Computer Science Engineering <i>1 cr belong to study year 3</i>	4.0 hp	First cycle
DD143X	Degree Project in Computer Science, First Cycle <i>Must be taken the same academic year as DD1365</i>	15.0 hp	First cycle
DD2395	Computer Security <i>May be skipped if both DN1241 and DD1350 were taken during study year 2</i>	6.0 hp	Second cycle
DS1395	Chinese, Advanced Beginners Level II	9.0 hp	First cycle
SF1631	Discrete Mathematics	12.0 hp	First cycle

Conditionally elective courses

Code	Name	Credits	Edu. level
DD1350	Logic for Computer Science	6.0 hp	First cycle
DN1241	Numerical Methods, Basic Course III	7.5 hp	First cycle

Supplementary information

Batch 09 take the third study year during the academic year 2011/12.

For suggestions for elective courses, please see the common Computer science and engineering program.

Year 4

Mandatory courses (9.0 Credits)

Code	Name	Credits	Edu. level
DS1396	Chinese, Intermediate Level	9.0 hp	First cycle

Supplementary information

Batch 09 take the fourth study year during the academic year 2012/13.

During study years 4 and 5 the students follow a master program of their choice.

Since the students on the international profile take language courses during study years 4-5 the choice of master programs is more limited. The student has three possibilities:

1. Take the master program in Computer science that offers a sufficient number of credits for elective courses.
2. In consultation with the program co-ordinator and the international co-ordinator investigate the possibilities of choosing another master program.
3. In consultation with the program co-ordinator and the international co-ordinator skip some of the compulsory courses from the selected master program and only receive the degree of Master of Science in Engineering degree (civilingenjör) and not the degree of Master of Science.

Year 5

Supplementary information

Batch 09 take the fifth study year during the academic year 2013/14.

During study years 4 and 5 the students follow a master program of their choice.

Not only the requirements set by the selected Master program to begin the degree project apply but also the following: The student must have 240 ECTS credits from completed courses within the Master of science of engineering program and may have at the most three unfinished compulsory courses from study years 1–3.



Appendix 2: Specialisations

Degree Programme in Computer Science and Engineering (CDATE)

International Profile (INT)

The programme of studies for the masters degree in computer engineering with an international profile begins with the compulsory courses in study years 1-2, and courses in the language choosen. In study year 3 compulsory courses and courses in the language choosen are taken. In study year 4 students take one of information technology specializations. Students who have chosen French, Spanish or German take additional language courses, those who opted for Japanese or Chinese take elective courses. In the fall semester of study year 5 students who have chosen Japanese or Chinese take language courses and those who opted for French, Spanish or German take elective courses. The programme ends in the spring semester in study year 5 with a degree project of 30 *credits*. Students are given the opportunity to relocate two semesters of study abroad to one of the KTH partner universities in the chosen language. The studies abroad should be done during study years 4–5. The international focus is special because language courses start already in study year 1 and are then taken throughout the education. Students take a total of 60 credits in Japanese or Chinese or 40 credits in one of the languages French, Spanish or German. Two courses taken by students on the normal Computer Science and Engineering program are not taken by students on the international profile: Communications in engineering and a conditionally elective course.

International Profile, Japanese (JAP)

The programme of studies for the masters degree in computer engineering with an international profile begins with the compulsory courses in study years 1-2, and courses in the language choosen. In study year 3 compulsory courses and courses in the language choosen are taken. In study year 4 students take one of information technology specializations. Students who have chosen French, Spanish or German take additional language courses, those who opted for Japanese or Chinese take elective courses. In the fall semester of study year 5 students who have chosen Japanese or Chinese take language courses and those who opted for French, Spanish or German take elective courses. The programme ends in the spring semester in study year 5 with a degree project of 30 *credits*. Students are given the opportunity to relocate two semesters of study abroad to one of the KTH

partner universities in the chosen language. The studies abroad should be done during study years 4–5. The international focus is special because language courses start already in study year 1 and are then taken throughout the education. Students take a total of 60 credits in Japanese or Chinese or 40 credits in one of the languages French, Spanish or German. Two courses taken by students on the normal Computer Science and Engineering program are not taken by students on the international profile: Communications in engineering and a conditionally elective course.

International Profile, Chinese (KIN)

The programme of studies for the masters degree in computer engineering with an international profile begins with the compulsory courses in study years 1-2, and courses in the language chosen. In study year 3 compulsory courses and courses in the language chosen are taken. In study year 4 students take one of information technology specializations. Students who have chosen French, Spanish or German take additional language courses, those who opted for Japanese or Chinese take elective courses. In the fall semester of study year 5 students who have chosen Japanese or Chinese take language courses and those who opted for French, Spanish or German take elective courses. The programme ends in the spring semester in study year 5 with a degree project of 30 *credits*. Students are given the opportunity to relocate two semesters of study abroad to one of the KTH partner universities in the chosen language. The studies abroad should be done during study years 4–5. The international focus is special because language courses start already in study year 1 and are then taken throughout the education. Students take a total of 60 credits in Japanese or Chinese or 40 credits in one of the languages French, Spanish or German. Two courses taken by students on the normal Computer Science and Engineering program are not taken by students on the international profile: Communications in engineering and a conditionally elective course.