Programme syllabus

Master's Programme, Human-Computer Interaction, 120 credits
Masterprogram, människa-datorinteraktion
120.0 credits

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

This programme syllabus, decided by the CSC dean 2013-09-27 is valid for students starting the programme during the study year 2014/2015. Which courses that belong a study year is decided in the fall the year before. Please see ”Study year 1” etc. or the appendices. Changes may occur in the contents of the programme and in the KTH regulations, please see www.kth.se/en/student.

The aim of the programme is, first and foremost, to educate Master of Science in Engineering and Master students for professional roles, both nationally and internationally, as an interaction designer (overall responsibility for design projects with focus on design, concrete design work which also includes advanced user-centered design and customer competence and design critique), multi-modal interaction engineer, and visualization engineer. For these roles, the students should be able to create and evaluate visual, acoustical and haptic user interfaces. They should master techniques for both acquisition of different types of visual, acoustical, and haptic information from a user and presentation of such information for the user. Both development and evaluation should be based on solid theoretical foundations pertaining to human perception, communication, mediated communication, and human-computer interaction in order to promote the efficiency, usability, and intuitiveness of the user-interface. The students should be able to use their knowledge for different applications within interaction, communication and visualization in a broad sense. Within the track, chosen by the student, knowledge is deepened and developed towards an expertise level.

Besides the goals stated in the Swedish Higher Education Ordinance the following goals apply. Link to goals stated in the Swedish Higher Education Ordinance: http://www.csc.kth.se/utbildning/dokument/HSVmal/hsvmastereng.pdf

Knowledge and understanding

The programme has the goal of providing the student with:
• knowledge about human perception and cognition, about design processes and about technology and research within multi-modal interfaces
• theories and methods for analysing and understanding a specific situation and a specific group of users. Especially, the programme should provide knowledge about how one meets different requirements on the user-interface for different types of applications and users. The programme includes everything from knowledge about human cognition and perception, about design processes to technologies and research about multi-modal interfaces
• in depth knowledge in his/her area of expertise.

Skills and abilities

The programme has the goal to provide the student with:

• the ability to work as a consultant, entrepreneur, or employee within larger companies or institutions which have their own groups of interaction designers and/or usability experts.
• the ability to independently initiate user-centered design projects, analyse specific usage situations and give recommendations for innovative design and/or re-design

Ability to make judgements and adopt a standpoint

The programme has the goal to provide the student with:

• the ability to evaluate the quality of scientific studies and show a reflecting and critical approach to both scientific and non-scientific texts
• through personal development, maintain a professional ability during a professional carrier
• follow discussions about technology in society and also contribute to it

Beyond this, there are similar goals for Master’s degrees defined in the higher education ordinance.

Extent and content of the programme

Human-computer interaction is a two-year (120 ECTS credits) master programme on the advanced level (second cycle). The language of instruction is English.

Eligibility and selection

General admission requirements: See KTH’s admission requirements for Master’s programmes, link below

Specific admission requirements: A Bachelor’s degree of 180 ECTS credits and programming knowledge (basic knowledge in some programming language and practical experience) and a introductory course in HCI, i.e. DH2620.

Selection: If the number of applicants exceeds the number of places available a programme committee will make a selection from the following criterias:

1. evaluation of university
2. grades from previous study
3. motivation to study
4. merit rating
5. references
6. proficiency in English

KTHs regulations: http://intra.kth.se/regelverk/utbildning-forskning/grundutbildning/antagning/1.276218

**Implementation of the education**

**Structure of the education**

This programme syllabus, established by the CSC Undergraduate education advisory group 2012-09-17 and then decided by the CSC dean 2012-09-26 is valid for students starting the program during the study year 2013/14. Which courses that belong a study year is decided in the fall the year before. Please see ”Study year 1” etc. or the appendices. Changes may occur in the contents of the programme and in the KTH regulations, please see www.kth.se/en/student.

The KTH academic year is 40 weeks, divided into four periods.

For details about the structure of the academic year see http://www.kth.se/en/student/schema/

The first semester compulsory courses are taken. Then the student follows one of the three tracks during the second and third programme semesters. The last semester is devoted to the degree project.

**Courses**

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

The course goals, prerequisites, contents and examination requirements are found in the course syllabus in the Course and programme directory on the KTH student web. For each study year there is a course list.

Elective courses are chosen from a list of courses. After approval from the programme co-ordinator, other relevant courses can be chosen. The number of credits for elective courses depends on which track the student chooses.

Examinations are done in many ways, for example home assignments which are presented orally and in writing, laboratory work, project work or traditional written examinations.

After every course, the students’ opinions are collected and analysed by the teacher in a course analysis which is normally published on the web, see KTH regulations for course analysis http://intra.kth.se/regelverk/utbildning-forskning/grundutbildning/kursanalys

**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.

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

**Conditions for participation in the programme**

*Semester enrollment*

At the start of each semester the student is required to make a study enrollment for the next semester at My pages.

The study enrollment is required for taking new courses and for study results to be registered.

*Approved leave from studies*

Approved leave from studies means that the student does not participate in the education during at least one study period. The student has the right to return to the education at a time agreed upon, and has the right to participate in the examination of non-finished courses.

Application for an approved leave is done on according to instructions from the CSC program office. When the student decides to return to the education, he/she is required to re-enroll to the studies.

Approved leave from studies is not granted during study year 1. Exceptions may be made if there are extraordinary reasons.


*Selection of track* is done according to instructions from the CSC school.

*Selection of courses*

The student is required to apply for admission to all courses he/she wishes to take during the next semester. The student is responsible for having the recommended prerequisites. The application for admission to a course is done according to instructions from the CSC school no later than

- May 15th for the fall semester
- November 15th for the spring semester

Applications made after this date are only granted if there are vacancies in the courses. Applications to language courses with prerequisites should be preceded by a qualification test.

In a few courses, the number of participants is limited. Selection is done by the school responsible for the course.

*Course registration*
The student must, at course start, register for each course. Course registration for compulsory as well as elective courses must be done individually. If the student registers for a course and then decides to not continue, the student must report this as soon as possible.

Registration to a course requires formal acceptance to the course (by the school responsible for the course). Applications should be done according to instructions from the CSC school.

**Promotion to second year**

At least 45 ECTS credits have to be completed during the first academic year in order for the student to be promoted to the second year of the program.

Students who do not fulfill these requirements must – in cooperation with the CSC program office – make an individual study plan for continued studies.


**Recognition of previous academic studies**

Credits for studies at another university can be transferred. An application form can be found on the KTH Student pages.

The application form is submitted to the CSC programme office.

For in-depth information about the KTH policy for credit transfer, see [http://intra.kth.se/en/regelverk/utbildning-forskning/grundutbildning/prestationer/1.27200](http://intra.kth.se/en/regelverk/utbildning-forskning/grundutbildning/prestationer/1.27200)

**Studies abroad**

Students of the programme have the possibility to spend one or two semesters of study at a foreign university through agreements KTH has with universities within and outside the EU. It is also possible to make the final degree project abroad.

For more information contact the international coordinator at CSC.

More information can be found on KTH’s student web and at [http://intra.kth.se/regelverk/utbildning-forskning/grundutbildning/utbytesstudier](http://intra.kth.se/regelverk/utbildning-forskning/grundutbildning/utbytesstudier)

**Degree project**

An individual study in the form of a degree project corresponding to 30 ECTS credits is included in the programme.

It is the responsibility of the student to find a suitable project task.

More information about the rules for degree projects at KTH can be found at [http://intra.kth.se/regelverk/utbildning-forskning/grundutbildning/examensarbete/1.27212](http://intra.kth.se/regelverk/utbildning-forskning/grundutbildning/examensarbete/1.27212)
For students on a Master of science of engineering programme not only the requirements set by the selected Master programme to begin the degree project apply but also the requirements from the Master of science of engineering programme.

Degree

After completing the programme, the student may apply for the Degree of Master of Science (Two Years), in Swedish: teknologie masterexamen.

Information on the application process can be found on the KTH Student pages.

Requirements for the Degree of Master of Science (Two Years)

The Degree of Master of Science (Two Years) is obtained after completion of the programme. The programme is designed so that students, when they graduate, have fulfilled the national requirements for a degree. This means that the students have completed courses comprising 120 ECTS credits, of which at least 90 ECTS credits are second cycle, and at least 60 ECTS credits (including a 30 ECTS credits degree project) constitute indepth studies in the main field of study.

See also the KTH regulations http://intra.kth.se/en/regelverk/utbildning-forskning/grundutbildning/examina/1.27227

Appendix 1 - Course list
Appendix 2 - Programme syllabus descriptions
Appendix 1: Course list

Master's Programme, Human-Computer Interaction, 120 credits (THCIM), Programme syllabus for studies starting in autumn 2014

General courses

Year 1

Mandatory courses (7.5 Credits)

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course name</th>
<th>Credits</th>
<th>Edu. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>DH2610</td>
<td>Theory and Methodology of Science in Human-Computer Interaction</td>
<td>7.5 hp</td>
<td>Second 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>DD2257</td>
<td>Visualization</td>
<td>7.5 hp</td>
<td>Second cycle</td>
</tr>
<tr>
<td>DD2427</td>
<td>Image Based Recognition and Classification</td>
<td>6.0 hp</td>
<td>Second cycle</td>
</tr>
<tr>
<td>DH2420</td>
<td>Introduction to Visualization and Computer Graphics</td>
<td>6.0 hp</td>
<td>Second cycle</td>
</tr>
<tr>
<td>DH2321</td>
<td>Information Visualization</td>
<td>6.0 hp</td>
<td>Second cycle</td>
</tr>
<tr>
<td>DH2323</td>
<td>Computer Graphics and Interaction</td>
<td>6.0 hp</td>
<td>Second cycle</td>
</tr>
<tr>
<td>DH2408</td>
<td>Evaluation Methods in Human-Computer Interaction</td>
<td>6.0 hp</td>
<td>Second cycle</td>
</tr>
<tr>
<td>DH2466</td>
<td>Advanced, Individual Course in Human-Computer Interaction</td>
<td>6.0 hp</td>
<td>Second cycle</td>
</tr>
<tr>
<td>DH2628</td>
<td>Interaction Design Methods</td>
<td>7.5 hp</td>
<td>Second cycle</td>
</tr>
<tr>
<td>DH2629</td>
<td>Interaction Design as a Reflective Practice</td>
<td>7.5 hp</td>
<td>Second cycle</td>
</tr>
<tr>
<td>DH2632</td>
<td>Human-Computer Interaction, Research Seminars</td>
<td>3.0 hp</td>
<td>Second cycle</td>
</tr>
<tr>
<td>DH2641</td>
<td>Interaction Programming</td>
<td>6.0 hp</td>
<td>Second cycle</td>
</tr>
<tr>
<td>DH2660</td>
<td>Haptics</td>
<td>6.0 hp</td>
<td>Second cycle</td>
</tr>
<tr>
<td>DT2112</td>
<td>Speech Technology</td>
<td>7.5 hp</td>
<td>Second cycle</td>
</tr>
<tr>
<td>DT2140</td>
<td>Multimodal Interaction and Interfaces</td>
<td>7.5 hp</td>
<td>Second cycle</td>
</tr>
<tr>
<td>DT2213</td>
<td>Musical Communication and Music Technology</td>
<td>7.5 hp</td>
<td>Second cycle</td>
</tr>
<tr>
<td>DT2350</td>
<td>Human Perception for Information Technology</td>
<td>6.0 hp</td>
<td>Second cycle</td>
</tr>
</tbody>
</table>
Supplementary information

All courses in the masterprogramme must be taken within the compulsory or the conditionally elective courses. Any deviation from this must be discussed with the programme director.

Year 2

Mandatory courses (60.0 Credits)

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course name</th>
<th>Credits</th>
<th>Edu. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>DA224X</td>
<td><strong>Degree Project in Computer Science and Communication,</strong> Second Cycle</td>
<td>30.0 hp</td>
<td>Second cycle</td>
</tr>
<tr>
<td></td>
<td>External admitted master student at CSC.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DA225X</td>
<td><strong>Degree Project in Computer Science and Communication,</strong> Second Cycle</td>
<td>30.0 hp</td>
<td>Second cycle</td>
</tr>
<tr>
<td></td>
<td>För civilingenjörsstudenter vid CSC.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Recommended courses

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course name</th>
<th>Credits</th>
<th>Edu. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>DD2418</td>
<td>Language Engineering</td>
<td>6.0 hp</td>
<td>Second cycle</td>
</tr>
<tr>
<td>DD2425</td>
<td>Robotics and Autonomous Systems</td>
<td>9.0 hp</td>
<td>Second cycle</td>
</tr>
<tr>
<td></td>
<td>Space limited course</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DD2429</td>
<td>Computational Photography</td>
<td>6.0 hp</td>
<td>Second cycle</td>
</tr>
<tr>
<td>DD2465</td>
<td>Advanced, Individual Course in Computer Science</td>
<td>6.0 hp</td>
<td>Second cycle</td>
</tr>
<tr>
<td>DH2400</td>
<td>Physical Interaction Design and Realization</td>
<td>7.5 hp</td>
<td>Second cycle</td>
</tr>
<tr>
<td>DH2413</td>
<td>Advanced Graphics and Interaction</td>
<td>9.0 hp</td>
<td>Second cycle</td>
</tr>
<tr>
<td>DH2466</td>
<td>Advanced, Individual Course in Human-Computer Interaction</td>
<td>6.0 hp</td>
<td>Second cycle</td>
</tr>
<tr>
<td>DH2627</td>
<td>Interaction Design 2</td>
<td>15.0 hp</td>
<td>Second cycle</td>
</tr>
<tr>
<td>DH2632</td>
<td>Human-Computer Interaction, Research Seminars</td>
<td>3.0 hp</td>
<td>Second cycle</td>
</tr>
<tr>
<td>DH2650</td>
<td>Computer Game Design</td>
<td>6.0 hp</td>
<td>Second cycle</td>
</tr>
<tr>
<td>DH2655</td>
<td>Cooperative IT-design</td>
<td>9.0 hp</td>
<td>Second cycle</td>
</tr>
<tr>
<td>DT2300</td>
<td>Sound in Interaction</td>
<td>7.5 hp</td>
<td>Second cycle</td>
</tr>
<tr>
<td>DT2350</td>
<td>Human Perception for Information Technology</td>
<td>6.0 hp</td>
<td>Second cycle</td>
</tr>
<tr>
<td>DT2410</td>
<td>Audio Technology</td>
<td>7.5 hp</td>
<td>Second cycle</td>
</tr>
</tbody>
</table>
Appendix 2: Specialisations

Master's Programme, Human-Computer Interaction, 120 credits (THCIM), Programme syllabus for studies starting in autumn 2014

This programme has no specialisations.