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 15 (HT - Autumn term; VT - Spring term).

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

Programme objectives

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.

In addition to this comes the Higher Education Ordinance goal for Master's degree.

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**

Foreligibility requirements and selection criteria see the KTH regulations, www.kth.se
Basic eligibility requirements: See KTH eligibility requirements for master’s programs.

Specific admission requirements: A Bachelor’s degree of 180 ECTS credits and programming knowledge (basic knowledge in some programming language and practical experience) and an 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 criteria:

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

The evaluation scale is 1-75.

KTH’s regulations: http://intra.kth.se/regelverk/utbildning-forskning/grundutbildning/antagning

**Implementation of the education**

**Structure of the education**

This programme syllabus decided by the CSC dean 2014-09-01 is valid for students starting the programme during the study year 2015/2016. 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. It is possible to choose elective courses. The last semester is devoted to the degree project.

**Courses**

The programme is course-based. Lists of courses are included in appendix 1.
The education is conducted by different courses. Course lists are available in Appendix 1. The different course objectives, prerequisites, content and course requirements can be found in the curricula of Course and program directory on the KTH student web. For each study year, there is a list of the courses within the programme.

**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 the Personal menu at www.kth.se

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

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

**Selection of courses**

Application to the course is done:

- 1 to 15 May for the autumn semester
- 1 to 15 November for the spring semester

with student kth.se account via universityadmissions.se

If the student is not doing their course selections by this system his/her application is only considered upon availability.

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.

A student may only take courses that are included in the study plan.

**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.

**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.

Please see the KTH regulations: http://intra.kth.se/en/regelverk/utbildning-forskning/grundutbildning/registrering-uppflyttning/1.27217
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

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/utbytessstudier

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/

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 2015

## General courses

### Year 1

**Mandatory courses (33.0 credits)**

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course name</th>
<th>Credits</th>
<th>Edu. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>DH2320</td>
<td>Introduction to Visualization and Computer Graphics</td>
<td>6.0</td>
<td>Second cycle</td>
</tr>
<tr>
<td>DH2408</td>
<td>Evaluation Methods in Human-Computer Interaction</td>
<td>6.0</td>
<td>Second cycle</td>
</tr>
<tr>
<td>DH2610</td>
<td>Theory and Methodology of Science in Human-Computer Interaction</td>
<td>7.5</td>
<td>Second cycle</td>
</tr>
<tr>
<td>DT2140</td>
<td>Multimodal Interaction and Interfaces</td>
<td>7.5</td>
<td>Second cycle</td>
</tr>
<tr>
<td>DT2350</td>
<td>Human Perception for Information Technology</td>
<td>6.0</td>
<td>Second cycle</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>DH2625</td>
<td>IT-design for the Disabled</td>
<td>6.0</td>
<td>Second cycle</td>
</tr>
</tbody>
</table>

**Supplementary information**

Subject to changes

### 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>DA221X</td>
<td>Degree Project in Computer Science and Communication, Second Cycle</td>
<td>30.0</td>
<td>Second cycle</td>
</tr>
</tbody>
</table>

*Only available for students enrolled at a Master programme at CSC*
Course code | Course name                                                                 | Credits | Edu. level  
-------------|------------------------------------------------------------------------------|---------|------------
DA222X       | Degree Project in Computer Science and Communication, Second Cycle          | 30.0    | Second cycle

For students enrolled in the engineering programme and admitted to a Master programme at CSC

Optional courses

| Course code | Course name                                      | Credits | Edu. level  
-------------|--------------------------------------------------|---------|------------
| DD2418      | Language Engineering                             | 6.0     | Second cycle
| DD2425      | Robotics and Autonomous Systems                  | 9.0     | Second cycle
| DD2429      | Computational Photography                        | 6.0     | Second cycle
| DH2400      | Physical Interaction Design and Realization      | 7.5     | Second cycle
| DH2413      | Advanced Graphics and Interaction                | 9.0     | Second cycle
| DH2466      | Advanced, Individual Course in Human-Computer Interaction | 6.0     | Second cycle
| DH2632      | Human-Computer Interaction, Research Seminars    | 3.0     | Second cycle
| DH2650      | Computer Game Design                             | 6.0     | Second cycle
| DH2655      | Cooperative IT-design                            | 9.0     | Second cycle
| DT2300      | Sound in Interaction                             | 7.5     | Second cycle
| DT2410      | Audio Technology                                 | 7.5     | Second cycle

Year 3

Track, Interaction Design (HCIA)

Year 1

Mandatory courses (15.0 credits)

| Course code | Course name                                      | Credits | Edu. level  
-------------|--------------------------------------------------|---------|------------
| DH2628      | Interaction Design Methods                       | 7.5     | Second cycle
| DH2629      | Interaction Design as a Reflective Practice      | 7.5     | Second cycle

Recommended courses

| Course code | Course name                                      | Credits | Edu. level  
-------------|--------------------------------------------------|---------|------------
| DH2642      | Interaction Programming and the Dynamic Web      | 7.5     | Second cycle
| DH2660      | Haptics                                          | 6.0     | Second cycle |
Supplementary information
Subject to changes

**Year 2**

**Mandatory courses (15.0 credits)**

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course name</th>
<th>Credits</th>
<th>Edu. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>DH2627</td>
<td>Interaction Design 2</td>
<td>15.0</td>
<td>Second cycle</td>
</tr>
</tbody>
</table>

Supplementary information
Subject to changes

**Year 3**

**Track, Multimodal Interaction Technology (HCIB)**

**Year 1**

**Mandatory courses (13.5 credits)**

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course name</th>
<th>Credits</th>
<th>Edu. level</th>
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</thead>
<tbody>
<tr>
<td>DH2660</td>
<td>Haptics</td>
<td>6.0</td>
<td>Second cycle</td>
</tr>
<tr>
<td>DT2213</td>
<td>Musical Communication and Music Technology</td>
<td>7.5</td>
<td>Second cycle</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>DD2427</td>
<td>Image Based Recognition and Classification</td>
<td>6.0</td>
<td>Second cycle</td>
</tr>
<tr>
<td>DH2323</td>
<td>Computer Graphics and Interaction</td>
<td>6.0</td>
<td>Second cycle</td>
</tr>
<tr>
<td>DH2642</td>
<td>Interaction Programming and the Dynamic Web</td>
<td>7.5</td>
<td>Second cycle</td>
</tr>
<tr>
<td>DT2112</td>
<td>Speech Technology</td>
<td>7.5</td>
<td>Second cycle</td>
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Supplementary information
Subject to changes

**Year 2**

**Mandatory courses (15.0 credits)**

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<tr>
<th>Course code</th>
<th>Course name</th>
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<th>Edu. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>DH2400</td>
<td>Physical Interaction Design and Realization</td>
<td>7.5</td>
<td>Second cycle</td>
</tr>
</tbody>
</table>
### Study Programme for Master's Programme, Human-Computer Interaction, 120 credits batch autumn 15.

**Appendix 1, page 4 of 4**

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course name</th>
<th>Credits</th>
<th>Edu. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>DT2300</td>
<td>Sound in Interaction</td>
<td>7.5</td>
<td>Second cycle</td>
</tr>
</tbody>
</table>

**Supplementary information**
Subject to changes

**Year 3**

**Track, Visualization (HCIC)**

**Year 1**

**Mandatory courses (13.5 credits)**

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<th>Course code</th>
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<th>Credits</th>
<th>Edu. level</th>
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<tbody>
<tr>
<td>DD2257</td>
<td>Visualization</td>
<td>7.5</td>
<td>Second cycle</td>
</tr>
<tr>
<td>DH2323</td>
<td>Computer Graphics and Interaction</td>
<td>6.0</td>
<td>Second cycle</td>
</tr>
</tbody>
</table>

**Recommended courses**

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<th>Credits</th>
<th>Edu. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>DH2321</td>
<td>Information Visualization</td>
<td>6.0</td>
<td>Second cycle</td>
</tr>
<tr>
<td>DH2642</td>
<td>Interaction Programming and the Dynamic Web</td>
<td>7.5</td>
<td>Second cycle</td>
</tr>
<tr>
<td>DH2660</td>
<td>Haptics</td>
<td>6.0</td>
<td>Second cycle</td>
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**Supplementary information**
Subject to changes

**Year 2**

**Mandatory courses (9.0 credits)**

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<th>Course name</th>
<th>Credits</th>
<th>Edu. level</th>
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</thead>
<tbody>
<tr>
<td>DH2413</td>
<td>Advanced Graphics and Interaction</td>
<td>9.0</td>
<td>Second cycle</td>
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</tbody>
</table>

**Supplementary information**
Subject to changes

**Year 3**
Appendix 2: Specialisations

Master's Programme, Human-Computer Interaction, 120 credits (THCIM), Programme syllabus for studies starting in autumn 2015

Track, Interaction Design (HCIA)

Track, Multimodal Interaction Technology (HCIB)

Track, Visualization (HCIC)