Translation of Subject Curriculum (Study Plan) for Third-cycle (PhD) Education

Computer Science with specialization in Human-Computer Interaction

Swedish title: Datavetenskap med inriktning mot människa-datorinteraktion

TNDAVE02

Swedish curriculum adopted by the Board of the Faculty of Science and Technology (Third-cycle Educational Board) on 2012-03-07, revision on 2018-01-17 and 2020-08-26. Translation approved 2012-03-07, 2018-01-17 and 2020-08-26.

The Study Plan for third-cycle studies consists of three parts: a general part, this subject specific study plan, and each doctoral student's individual study plan.

Objective
In relation to the first and second-level education in the subject area, the third-cycle studies are expected to provide additional insight into the most important areas of the subject as well as in-depth knowledge within at least one subdivision. This includes training in research methodology, along with good insight into the issues that exist in the research area and its applications. Through supervision and thesis writing, the doctoral student should become well prepared for critical, self-critical and independent research as well as other professional activities, for instance in industrial or societal settings, where deep subject knowledge and research abilities are required. The doctoral student shall also be able to present her/his own goals and results orally and in writing to different target groups in English and, in the case of Swedish-speaking doctoral students, in Swedish.

Subject description
Research in Human-Computer Interaction (HCI) concerns the study of interactions between humans and a technological surrounding as well the development of techniques and computational approaches for such interactions. ‘Technological surroundings’ should here be understood in a general sense
including, for instance, industrial control systems as well as robots and computer based system for general use. The objectives are to better understand possibilities and problems that might occur when humans are interacting with technological surroundings in order to influence the shaping of new technology and its use in such a way that it contributes to a positive development for individuals, groups and society at large. HCI is a multi-disciplinary subject where research competencies from different areas are integrated in order to develop new theories and methods. Examples of such areas are technology, computer science, psychology, robotics, work environment, pedagogy, sociology, organizational sciences and economy as well as philosophy, political science, law, medicine and biology.

Research in HCI encompasses basic research on humans interacting with technological surroundings as well as the development of methods and techniques for such research and the application of results in different domains.

Eligibility

Basic Eligibility
The basic eligibility for third-cycle studies is described in the general part of the study plan.

Special Eligibility
Specific eligibility for third-level education in Human-Computer Interaction (HCI) encompasses passed examination in courses relevant for HCI corresponding to at least 90 higher education credits. Of these 90 credits at least 30 needs to be at an advanced level. Persons who have acquired corresponding knowledge outside Sweden are also qualified.

Admission
Applicants for third-cycle studies in HCI must submit an application to the Head of the Department of Information Technology. Admission to doctoral studies takes place normally two times per year.

Upon admission to postgraduate education, the Swedish title of the degree is to be specified in the application. According to decision (TEKNAT 2012/215), postgraduate education in Computer Science with specialization in Human-Computer Interaction shall lead to a filosofie doktorsexamen or technologie doktorsexamen. The English
rendering will in either case be a licentiate/doctorate degree of philosophy.

At the time of admission, the department must provide a financial assistance plan demonstrating sufficient support to cover the maintenance of the applicant as well as her/his research.

Program structure

At the time of admission, each doctoral student and her/his supervisor shall draw up an individual study plan after consultation with the professor in charge of third-cycle studies. The plan is to be approved by the Head of the Department (by delegation of the Faculty Board) at the time of admission.

The individual study plan shall be annually reviewed by the doctoral student and her/his supervisor jointly, and supplemented with a summary of the achieved results and the plans for the coming year. Significant changes as well as any disagreement on the individual study plan shall be reported to the Head of the Department or, if deemed necessary, to the Third-cycle Educational Board.

Courses

Courses in third-cycle education are intended to provide wider insight into the subject area as a complement to the specialist competence acquired in the research work. The courses are divided into base courses, that may be common to all third-level students in HCI, and complementary courses adapted to the planned content of the thesis as well as knowledge broadening courses. The complementary courses are meant to deepen the knowledge within the area of the thesis subject. The broadening courses are intended to give the student the possibility to acquire knowledge from other scientific areas that are of a special relevance to the thesis subject and its applications. In this manner, a relatively large number of course credits can be taken by a computer science major in, for instance, behavioral science or organizational science and by a psychology major in computer science or technology.

A course in research ethics (of at least 2 higher education credits) is mandatory for licentiate and doctoral degree, as well as university educational theory for doctoral students who teach at basic or advanced level.
The range of courses offered is revised continuously. Examples of base courses are:

- Theory of science and scientific methodologies
- Research methods in HCI
- Social robotics
- Technology, philosophy, ethics and sustainability
- Perception and cognition for HCI
- Design and development of user interfaces
- Cognitive work environment issues and humans in complex technological environments

Courses from a lower-level program may not exceed 15 higher education credits. Courses that have been used for admission to the program may not be part of the individual study plan.

**Requirements for doctoral degree**

The requirements for the doctoral degree consist of passed examinations in the courses included in the approved individual study plan of each doctoral student, as well as a passed public defense of the degree project. The studies awarded a doctoral degree comprise 240 higher education credits (four years of full-time studies), of which the doctoral thesis comprises a minimum of 150 higher education credits and the course part a minimum of 90 higher education credits.

**Requirements for licentiate degree**

A doctoral student who has acquired at least 120 higher education credits (two years of full-time studies) is eligible for a licentiate degree. The requirements consist of passing the examinations included in the program stage and receiving a passing grade on an academic paper of at least 60 higher education credits. The part of the course amounts to a minimum of 45 higher education credits.

If the doctoral student does not complete a licentiate degree, he/she shall instead give a half-time seminar, which is publicly announced within the department at least two weeks in advance. The half-time seminar shall consist of a 45 minutes presentation, in which the doctoral student presents his/her scientific problem, an overview of his/her research, its methodology and achieved results, as well as planned research, in a manner that is accessible to an audience with a background in Human-Computer Interaction. An
external reviewer should take part in the seminar. After the presentation, there should be a scientific discussion where the external reviewer and other members of the audience provide feedback. The course on research ethics that is mandatory for licentiate and doctoral degree must be completed before the half-time seminar.

**Other**

Research in HCI is conducted in the context of national and international cooperation and requires an extensive global information flow. It is necessary that the graduate student can understand and write texts related to HCI in English. The dispersing of knowledge outside of the academic world is important. Students in third-level programs should therefore take part in activities aiming at distributing knowledge to different parts of society.