Doctoral programme — Mediated Communication

The programme description was approved by Fakultetsnämnden (Faculty Board) November 30, 2010. Valid from Spring 11.

Programme description (KTHKOM)

Programme name

Mediated Communication (Medierad kommunikation)

Subject area

The doctoral programme's overall purpose and learning outcomes

The aim of KTH's education for third-cycle studies is to equip the society with qualified researchers that can contribute to a sustainable social progress. The aim for the education in the doctoral programme is to give the student good knowledge within the subject area and ability to carry out independent research, development, teaching and diagnostic work within different fields of the society. The aim for Degree of Doctor is in addition to give the student the ability to critically and independently plan, finance, initiate and lead such work. See further http://intra.kth.se/regelverk /utbildning-forskning/forskarutbildning/mal-for-utbildningen-pa-forskarniva

The doctoral programme's size and recruitment

Calculated number doctoral students in the program is about 35 doctoral students. Doctoral students are admitted with respect to project funding. To all specialisations can be admitted individuals with Master of Engineering or Master's degree in media and communication technology, electrical engineering, computer technology, engineering physics or from more interdisciplinary orientated engineering educational programmes. Within respective specialisation can furthermore be admitted individuals with other for the research issues relevant education, for example higher education qualification in behavioural science, design science, philosophy, phonetics, cognitive science, artistic shape and design, cultural studies, logopedics, media and communication studies (MKV), musicology or teaching and learning. To become admitted to education for third-cycle studies, it is required that the applicant partly has general entry requirements, partly has the entry requirements that the faculty council can have prescribed for each individual subject for third-cycle studies according to respective current subject study plan. The applicant should furthermore have such ability in other respects that are needed to utilize the education. General entry requirements are fulfilled, according to Higher Education Ordinance 7 chapter 39 §, if one has
1. taken a higher education qualification for second-cycle studies, or
2. completed course requirements about at least 240 credits, of which at least 60 credits for second-cycle studies, or
3. 3. In another way within or outside the country acquired equivalent knowledge. The Faculty council may for an individual applicant admit exceptions from the requirement of general entry requirements if special circumstances apply. Apart from relevant academic undergraduate degree as above, are required special subject knowledge within related fields. This knowledge can have been achieved either through basic higher education or in a different way. Generallly, the applicants should be strongly motivated for third-cycle courses and study programmes, have ability to independent work and critical analysis and good cooperation and communication ability. Applicant should have good knowledge in English in speech and writing. Knowledge in Swedish is not necessary but can facilitate the execution of the third-cycle courses and study programmes. Recruitment/notification and admission of doctoral students according to KTH's regulatory framework: http://intra.kth.se/regelverk/utbildning-forskning/forskarutbildning/antagning/antagningsordning-for-utbildning-pa-forskarniva-vid-kth-1.27236 There are today 15 principal supervisors in the program (Media and communication technology, 4 principal supervisors; Sound and music, 4 principal supervisors; HCI, 7 principal supervisors).

Funding

Funding of the doctoral programme, including its quality assurance procedures and doctoral positions, comes from direct government fundings for research and third-cycle programmes and external fundings for research, e g through participation in doctoral schools.

For doctoral students with (external) stipends apply special rules, see http://intra.kth.se/regelverk/utbildning-forskning/forskarutbildning/studiefinansiering/tillampning-av-finansieringsmojligheter-for-doktorander-vid-kth

Courses

The courses within the doctoral programme are all offered within a third-cycle subject and are therefore presented in the study plan for the subject.

Quality enhancement activities

The programme is subject to a permanent improvement process through evaluations of courses, the students'progress and analyses of the adequacy of the supervision and the thesis. Courses for third-cycle studies are evaluated according to CSC's and KTH's regulatory framework which implies that course analyses are prepared and are published after each course offering. The progress of the doctoral students is monitored annually in the following ways:

- Each doctoral student writes a'progress declaration'that is discussed with two academic staff, not the principal supervisor, to evaluate the quantity and quality in study progression and supervision.
- The individual study plan is revised and established by the principal supervisor, FA and PA.

In both course evaluations and the progress declaration, improvements to the doctoral programme may be suggested and should lead, through discussion in the programme council, to appropriate measures.

The programme council and programme co-ordinator should also follow the local and international discussion within the subject area, both that for general education for third-cycle studies, and continuously adapt the programme to the development. Discussion of the progress declaration can in addition lead to adjustments to the supervisor team for a doctoral student. The quality of the thesis is evaluated in accordance with the publication standards that are described below and through discussion between the examining committee, supervisor and chairman at public defence of doctoral thesis. As a part of the third-cycle courses and study programmes, the doctoral student should carry out three reconcilation seminars: 30%, half-time and a final review We have also an internal quality inspector that should certify the quality of the thesis before the doctoral student is allowed to publicly defend the doctoral thesis. The publication standard in the area of mediated communication is not uniform due to cultural differences and that the field stretches from clean theory to salient applied research. A compilation thesis consists normally of 4-6 published articles (in peer-reviewed journals or the equivalent) and an initial summarising chapter. Within certain parts of the field, a publication at the best conferences has a higher "impact" than a journal publication. A high-quality thesis may center around a single breakthrough result published in a first-tier journal or conference proceedings, or it may be based on a series of journal articles and/or conference publications where the research issues are gradually developed and solved. All intermediate points on the scale between these two extremes occur. For monographs, equivalent publication activities should have occurred and publications on which the monograph is based should be referred to. The order of authors within the area is not stable (alphabetic order or one of the systems in which the authors' roles are apparent from the sequence of co-authors), which must be observed when assessing the effort of the author of the thesis.

National and international network

The curriculum is coordinated with neighbouring doctoral programmes at KTH, as well as with local and national doctoral schools. International doctoral schools are organised in several subjects within different international organisations. These schools are often appropriate to be included as an integrated part of doctoral students'syllabuses. An extended visit to an internationally well-recognized research group with a relevant research profile is a natural part of doctoral students' studies and might be included in the study plans. Exchanges should exploit supervisors' contact networks, for example with Aalto the university, Chalmers, Georgia Tech, Lausanne, UC Berkeley, University of Illinois Urbana-Champaigne, University of London, MIT, Yale University and with other universities within the scope of "joint doctoral programs" as for instance Erasmus Mundus.

The above is enumerated and defined in appendix 3.

Further instructions for registration

Appendixes

Appendix 1.1: Study plan for third-cycle subject Speech and Music Communication (LJUDMUSI).

Appendix 1.2: Study plan for third-cycle subject Media Technology (MEDIAT).

Appendix 1.3: Study plan for third-cycle subject Human-Computer Interaction (MÄNDATOR).

Appendix 2: List containing names and subject areas of supervisors within the programme

Appendix 3: Presentation of the programme's national and international network

Doctoral programme — Mediated Communication

Appendix 1.1: Study plan for third-cycle subject Speech and Music Communication (LJUDMUSI).

The subject plan was approved by Fakultetsnämnden (Faculty Board) November 30, 2010. Valid from Spring 11.

Subject title

Speech and Music Communication (tal- och musikkommunikation)

Subject description and programme outcomes

Scientific field

The subject Speech and music communication encompasses scientific studies of human communication primarily by means of acoustic signals such as speech or music. Also communication by means of visual signals, for example facial gestures and body movements during speech or music, is included in the subject. The field includes descriptions, theories, models and technical systems covering all aspects of the communication chain from production, acoustic transfer, and transformation via hearing to perception, understanding and experience.

The subject plan was approved by Fakultetsnämnden (Faculty Board) November 30, 2010. Valid from Spring 11.

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Description of possible specialisation

1. Speech communication
2. Music acoustics

Specification of how the programme outcomes are to be achieved

Speech communication

Description of the specialisation

Speech communication encompasses the theory of speech communication processes and applications within information technology, telecommunications and also within a number of medical specialities and aids for the handicapped.

Current research

Speech technology that includes applications of speech communication is under fast development and has grown to a new interdisciplinary research domain with his roots mainly in linguistics, speech communication research and computer science. Examples of research areas are: multi-modal speech synthesis, automatic speech recognition, speaker verification, multi-modal dialogue systems and more application-oriented systems and methods related to e.g. language learning and different disabilities. Any one of these areas comprises a suitable subject for a thesis. Thesis related research is often associated with the Centre for Speech Technology (CTT), a competence centre for cooperation between academia and industry. Basic research in speech production, acoustics of speech, speech perception and analysis of voice quality is also carried out at the department and can constitute a suitable thesis subject.

Programme structure

The education can be completed with Degree of Licentiate or Degree of Doctor. Education for third-cycle studies comprising a total of 120 credits for Degree of Licentiate and 240 credits for Degree of Doctor consists of coursework and thesis work. The coursework includes for Degree of Licentiate 35-50 credits and for Degree of Doctor 60-90 credits. KTH's local regulations for education for third-cycle studies regulate how first-cycle courses may be included in the degree. The reason for any individual deviations to these regulations must be specified in the individual study plan. Courses for first-cycle studies can only be included if these are essential for the individual thesis subject or give an interdisciplinary expansion of the research area. Deviation from the suggested number of

credits can occur in the case of extraordinary circumstances. Courses for third-cycle studies can be given in the form of lectures, seminars, reading assignments and project assignments. The courses for each individual doctoral student are established individually in consultation with the head of the subject area and the principal supervisor. An individual study plan should be established and updated normally once a year. The study plan should convincingly show how the aims for the doctoral student's third-cycle studies can be achieved within available time. Doctoral students should, during their education, take part in and contribute to the scientific activity that is carried out at the department by attending seminars and give normally a seminar a year about their thesis work.

Compulsory and recommended courses

In the coursework must be included elements of theory of knowledge and research methodology. In the coursework may be included courses with a specialisation in teaching and learning in higher education. Such courses are, however, a requirement if teaching within the first and second cycle education should take place during the studies.

The courses Basics of Speech and Hearing (F2F5113) and Theory of Speech Communication (F2F5115) are compulsory for both licentiate and doctoral students. Other courses are defined and chosen individually. Some of these courses are described below.

Due to the interdisciplinary nature on the studies, doctoral and undergraduate courses at other universities can be included in the coursework. Especially courses in Phonetics and Linguistics can often be a good complement to the courses in Speech Communication.

Compulsory courses

F2F5113 Basics of Speech and Hearing, 15 credits.

Basics of speech and hearing Physiology of speech and hearing. Signal structures in different parts of the human speaker/listener speech chain. Coding mechanisms.

F2F5115 Theory of Speech Communication, 15 credits.

Theory of speech communication. Information theory, linguistics and phonetics as theoretical ground for speech communication. The speech code. Special emphasis is placed on such aspects of speech communication which have particular importance for automatic speech understanding and speech synthesis.

Courses recommended optional

F2F5112 Special Course in Signal and Circuit Theory, 15 credits.

Special course in signal and circuit theory. Signal processing methods for speech analysis and speech recognition. Models for speech production by means of for example transmission lines.

F2F5114 Advanced Course in Speech and Hearing, 7.5-22.5 credits.

Advanced course in speech and hearing. Problems with complexity and variability.

Interaction. Auditory transformations in relation to the speech code.

F2F5116 Advanced Course in Speech Communication Theory, 7.5-22.5 credits.

Advanced course in speech communication theory. Text analysis, parsing, problems with lexical access. Relationships between prosodic and segmental features. Speaker-specific features and speaking style variations.

F2F5117 Speech Communication Systems, 15 credits.

Speech communication systems. The use of speech communication models in speech technology systems, e.g. speech-based dialogue systems. Design criteria and performance. Evaluation of speech intelligibility and speech quality Effect of room acoustics and limitations in the ability of the speaker /listener Speech based dialogue systems. Applications within for example information technology, telecommunications, education and aids for the handicapped.

Thesis

The work with the thesis or the licentiate thesis should be started as soon as possible after the third-cycle studies have been started. The subject for the thesis should be chosen in consultation with the head of the subject area and principal supervisor, and should connect to the ongoing research at the department.

The thesis or the licentiate thesis is a compulsory part of the education for third-cycle studies. This part of the education aims at developing the student's ability to give independent contributions to research and cooperating to scientific studies within and outside his/her own subject. The thesis or the licentiate thesis should contain new research results that the student has developed alone or in collaboration with others. The main scientific results should satisfy the quality requirements for publication in internationally recognised journals using a peer review system. The studentâs own contribution to texts in a thesis having several authors shall be separately defined

The thesis or the licentiate thesis should normally be written in English. It can either be designed as a compilation of scientific articles or as a monograph thesis. In the previous case, there should be a dedicated written summary.

Irrespective of if the thesis is intended to become a monograph or compilation thesis, international publication of achieved results should be sought during the doctoral studies.

Music acoustics

Description of the specialisation

Music acoustics encompasses theories of the musical communication process: composer- musicians-listeners.

Current research

Research and related applications lie primarily within the following areas: music instrument analysis and design, vocology, music informatics, music technology, audio reproduction, nonverbal communication through sound, and music and voice pedagogy. Central subjects comprise theories for sound generation in musical instruments (including the singing voice) and models of music perception.

The structuring of sound sequences on several levels in the music communication chain is another important subject area. Music acoustics is therefore a strong interdisciplinary subject.

The education for third-cycle studies should further lead to a deepened understanding of music as both an acoustic and psychological phenomenon.

Programme structure

The education can be completed with Degree of Licentiate or Degree of Doctor. The coursework includes for Degree of Licentiate 35-50 credits and for Degree of Doctor 60-90 credits.

KTH's local regulations for education for third-cycle studies regulate how first-cycle courses may be included in the degree. The reason for any individual deviations to these regulations must be specified in the individual study plan. Courses for third-cycle studies can be given in the form of lectures, seminars, reading assignments and project assignments. Independent literature studies comprise the most important part of the course work and are to be chosen individually in consultation with the supervisor.

An individual study plan should be established and updated normally once a year. The study plan should convincingly show how the aims for the doctoral student's third-cycle studies can be achieved within available time.

Doctoral students should, during their education, take part in and contribute to the scientific activity that is carried out at the department by attending seminars and give normally a seminar a year about their thesis work.

Compulsory and recommended courses

In the coursework must be included elements of theory of knowledge and research methodology. In the coursework may be included courses with a specialisation in teaching and learning in higher education. Such courses are, however, a requirement if teaching within the first and second cycle education should take place during the studies.

The courses Acoustics (F2F5210), Auditory Perception (F2F5211) and Room Acoustics (F2F5205) are compulsory for both licentiate students and doctoral students. Other courses are defined and chosen individually.

Compulsory courses

F2F5210 Acoustics 7.5-15 credits.

The main fields of study of the classical acoustics: the wave equation, oscillations in strings, pipes, membranes, rods and plates.

F2F5211 Auditory Perception 7.5-30 credits.

Physiology of hearing, perception, the representation of signals in the peripheral auditory system, binaural hearing and localisation.

F2F5205 Room Acoustics 7.5 credits.

Sound fields in rooms, ray tracing, wave-theoretical and statistical models.

Optional courses

F2F5212 Instrument acoustics 7.5-30 credits.

The science about the acoustic function of the most common instruments: excitation principles, feedback in resonator systems, radiation properties.

F2F5214 Musicology 7.5-15 credits.

Fundamentals of harmony, counterpoint and elementary composition. Also other optional courses can occur.

FDT3230 Statistical methods for the behavioural science 7.5-10 credits.

Basic statistics, categorical data, tests of means, correlation and regression, analysis of variance, multiple regression.

Thesis

The work with the thesis or the licentiate thesis should be started as soon as possible after the third-cycle studies have been started. The subject for the thesis should be chosen in consultation with the subject responsible person and principal supervisor, and should connect to the existing research at the department.

The thesis or the licentiate thesis is a compulsory part of the education for third-cycle studies. This part of the education aims at developing the student's ability to give independent contributions to research and cooperating to scientific studies within and outside his/her own subject. The thesis or the licentiate thesis should contain new research results that the student has developed alone or in collaboration with others. The main scientific results should satisfy the quality requirements for publication in internationally recognised journals using a peer review system. The studentâs own contribution to texts in a thesis having several authors shall be separately defined The thesis or the licentiate thesis should normally be written in English. It can either be designed as a compilation of

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scientific articles or as a monograph thesis. In the previous case, there should be a dedicated written summary. Irrespective of if the thesis is intended to become a monograph or compilation thesis, international publication of achieved results should be sought during the doctoral studies.

Entry requirements and selection

General and special admission requirements and prior knowledge

General entry requirements are defined by general regulations established by National the Agency for Higher Education and KTH centrally.

Selection rules and procedures

The selection is made among the applicants who satisfy the entry requirements. At the selection, the grade of the applicant's maturity, ability to independent assessment and critical analysis constitute important aspects. Strong emphasis is placed at learning outcomes in advanced courses or in the form of individual projects such as the degree project. Furthermore, the head of the subject or a selected teacher should have accepted the responsibility as supervisor for the student.

The programme's degrees and examinations

Degree of Licentiate and Degree of Doctor (PhD)

Degree of Licentiate and Degree of Doctor are to be taken in accordance with KTH's general rules.

The programme's examinations

No other compulsory tests are included in the education.

Doctoral programme — Mediated Communication

Appendix 1.2: Study plan for third-cycle subject Media Technology (MEDIAT).

The subject plan was approved by Fakultetsnämnden (Faculty Board) November 30, 2010. Valid from Spring 11.

Subject title

Media Technology (Medieteknik)

Subject description and programme outcomes

Scientific field

Mediated Communication as a reasearch area, includes technology and methods that support human communication over distances in time and space. The subject area includes a broad spectrum of related, often multidisciplinary, subareas. For instance, media production, content and design in media, media use, media-related gender and intersectional theory, cultural critique from a media perspective, financial aspects, and media development. Within all subareas, the technological sciences meet other disciplines, and an understanding of cooperation between the different disciplinary domains is necessary within the subject. The subject changes and developes continuously concurrently with the general deveoplments in the soceity and within the area of technology.

The subject plan was approved by Fakultetsnämnden (Faculty Board) November 30, 2010. Valid from Spring 11.

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Description of possible specialisation

1. Mediated Communication and Graphic Production
2. Communication, media design and cultural theory

Specification of how the programme outcomes are to be achieved

Mediated Communication and Graphic Production

Description of the specialisation

The education for third-cycle studies in Mediated Communication and Graphic Production have aims to build specialist competence within subject area directed towards researc,h and advanced developmental work. Considering the broadness and the constant change within the subject area â the aims are both to give a broad perspective on media, media industry, and mediated communication, and at the same time provide a specialization within one or several subareas. Emphasis is also put on the development of interdisciplinary and humanistic understanding. The education is organized in a matter that itÂ´s possible to adapt it to the individual doctoral student's field of interest.

Current research

Research in Mediated Communication at KTH is held at the department of Media Technology and Interaction Design at the school for Computer Science and Communication, CSC. The education for third-cycle studies in the subject should be linked to current research. There is information about the current research specializations on the website of the department, or can be obtained of the head of subject.

Programme structure

The education for third-cycle studies includes a total of at least 120 credits for Licentiate degree, and 240 credits for Doctoral degree, and consists of a course module and a thesis.

A doctoral degree includes courses of 60-90 credits and a licentiate degree includes courses corresponding to 40-60 credits. Deviation from the suggested number of credits can occur in the case of extraordinary circumstances. Courses for third-cycle studies can be given in the form of lectures,

seminars, literature courses and project assignments. The courses for each individual doctoral student are established individually in consultation with principal supervisors and, when necessary, head of subject. An individual study plan is established within six months after admission and is updated annually. The study plan specifies how the aims for the education are to be achieved for third-cycle studies. The doctoral student should start thesis as soon as possible after admission. The thesis corresponds 150-180 credits for the doctoral degree and 60-80 credits for licentiate degree. The subject for the thesis should be chosen in consultation with principal supervisors and, when necessary, head of subject, and should connect to the research at the department. The doctoral student has, apart from a main supervisor, one or several assistant supervisors in the subject area of the thesis. Students in third-cycle studies should take part in, and contribute to, the scientific and educational activities at the department.

Compulsory and recommended courses

A course in research methodology or theory of science should be included in the doctoral studies.

No other courses are compulsory, but the study plan is established individually for each and every doctoral student. The courses in the study plan should be chosen in a manner that they cover both the specialization within the own research domain, and the multidisciplinary width.

KTH's regulations for third-cycle studies regulate how courses on different levels may be included in the doctoral studies.

Thesis

Licentiate thesis is based on research, or diagnostic work within some of the subject area's subareas. The thesis can either be designed as a compilation of scientific articles, or as a monographic thesis. Usually, a compilation thesis includes at least three articles. There is a strong emphasis on a logical and rhetorically distinct presentation of the results of the thesis. The licentiate thesis as a whole or its parts may be included in a future doctoral thesis. The licentiate thesis must be published, presented and reviewed at a public seminar.

Doctoral thesis is based on research within some of the subject area's subareas.

The thesis can either be designed as a compilation of scientific articles, or as a monographic thesis, including an introduction and a summary. Usually, a compilation thesis includes at least three articles.

The thesis should be written in English, and the main scientific results should correspond to the quality requirements for publications in internationally renowed papers or conferences with referee system. There is a strong emphasis on a logical and rhetorically distinct presentation of the results of the thesis. The thesis must be published, presented and reviewed at a public defence of the doctoral thesis.

Communication, media design and cultural theory

Description of the specialisation

Doctoral studies in communication, media design and cultural theory aim to provide high competence within subject area. Considering the broadness and the constant change- the aim of the education is to give both a broad perspective on communication and critical cultural theory, processes and methods for media design and mediated communication, and a specialization within one or several subareas. The development of interdisciplinary, humanistic and artistic understanding are emphasized. The education is organized in a matter that itÂ´s possible to adapt it to the individual doctoral student's field of interest.

Current research

Research in mediated communication, media design and cultural theory at KTH are held at the department for Media Technology and Interaction Design at the School for Computer Science and Communication, CSC. The doctoral education in the subject should be linked to current research. There is information about the current research specializations on the website of the department, or are obtained from the head of subject.

Programme structure

The education for third-cycle studies includes a total at least 120 credits for Licentiate degree, and 240 credits for Doctoral degree, and consists of a course module and a thesis.

A doctoral degree includes courses of 60-90 credits and a licentiate degree includes courses corresponding to 40-60 credits. Deviation from the suggested number of credits can occur in the case of extraordinary circumstances. Courses for third-cycle studies can be given in the form of lectures, seminars, literature courses and project assignments. The courses are established for each and every doctoral student individually in consultation with main supervisor and, when necessary, head of subject. An individual study plan is established within six months after admission and is updated annually.

The study plan specifies how the aims for the doctoral studies should be achieved.

The writing of the thesis should start as soon as possible after admission. The thesis corresponds to 150-180 credits for Doctoral degree, and 60-80 credits for the Licentiate degree. The subject for the thesis should be chosen in consultation with main supervisor and, when necessary, head of subject, and should connect to the research at the department. The doctoral student has, apart from a main supervisor, one or several assistant supervisors.

Students in third-cycle studies should take part in, and contribute to, the scientific and educational activities at the department.

Compulsory and recommended courses

A course in research methodology or theory of science should be included in the doctoral studies.

No other courses are compulsory, but the study plan is established individually for each and every doctoral student. The courses in the study plan should be chosen in a manner that they cover both the specialization within the own research domain, and the multidisciplinary width.

In KTH's local regulations for the higher education qualifications for third-cycle studies be regulated how courses in different levels may be included in a higher education qualification.

Thesis

The licentiate thesis is based on research or diagnostic work within some of the subject area's subareas. The thesis can either be designed as a compilation of scientific articles, or as a monographic thesis, including an introduction and a summary. Usually, a compilation thesis should include at least three publications. There is a strong emphasis on a logical and rhetorically distinct presentation of the results of the thesis. The licentiate thesis or its parts may be included in a future doctoral thesis. The thesis must be published, presented and reviewed at a public seminar.

The doctoral thesis is based on research within some of the subject area's subareas. The thesis can either be designed as a compilation of scientific articles, or as a monographic thesis, including an introduction and a summary. Usually, a compilation thesis should include about four publications. The thesis must be written in English, and the main scienctific results must meet the quality requirements for publications in internationally renowned papers or conferences with referee system. There is a strong emphasis on a logical and rhetorically distinct presentation of the results of the thesis. The thesis should be reviewed, published and defended at a public public defence of doctoral thesis.

Entry requirements and selection

General and special admission requirements and prior knowledge

The general qualification requirements to be admitted to docotral studies is a master's degree, 240 university credits of which 60 university credits at an advanced level. This requirement is also met if the applicant has acquired equivalent knowledge. The faculty council may make exceptions to the general qualifcation requirements for a particular applicant if there are special reasons. To be eligible for the doctoral programme in Mediated Communication the applicant must have relevant engineering- or master's degree or have acquired knowledge equivalent to 240 credits within related

areas. Apart from relevant academic degree special subject knowledge is required within media and communication technology or related fields. This knowledge may be acquired through general academic education or in some other way.

To be eligible for doctoral studies a capacity for, and an ability to third-cycle is required. Furthermore, a qualified person must have accepted the responsibility to supervise the applicant.

Selection rules and procedures

The rules for the selection are established by the director of doctoral studies.

The programme's degrees and examinations

Degree of Licentiate and Degree of Doctor (PhD)

Graduation for the Licentiate degree and the Doctoral degree is carried out in accordance to KTH's regulations.

The programme's examinations

No other compulsory tests are included in the education.

Doctoral programme — Mediated Communication

Appendix 1.3: Study plan for third-cycle subject Human-Computer Interaction (MÄNDATOR).

The subject plan was approved by Fakultetsnämnden (Faculty Board) November 30, 2010. Valid from Spring 11.

Subject title

Human-Computer Interaction (Människa-datorinteraktion)

Subject description and programme outcomes

Scientific field

Human-Computer Interaction is the study of the interaction between people and computerised systems. The field is interdisciplinary and include partly computer science methods and tools for design of customized systems, partly human sciences' theory and method to understand, evaluate and improve computerised systems for human usage.

The area of HCI includes studies of methods and tools for efficient realization of:

- interaction between users and computerised systems
- user groups interactions through a computerised system
- the interface between man and computer, and the relationship between different communication media in the interface

- the relationship between activities, user and the computer-aid.

The aim for the doctoral education is very good knowledge in the field human computer interaction and ability to carry out independent research and investigation in the area and its applications within different fields of the society.

The doctoral studies in HCI, together with appropriate undergraduate degree, secures the student's interdisciplinary skills and thereby a broad perspective on the area of HCI.

After completing the education the doctoral students are able to:

1. describe and explain theories, design principles and empirical results in their area of specialization,
2. formulate concrete research issues within HCI
3. use established research methods and provide new knowledge,
4. critically analyse and evaluate their own and others' research results,
5. present and discuss research results to colleagues, the public and in education,
6. analyse and take a stand in ethical and aesthetic aspects of research in computer science and act thereafter
7. participate in interdisciplinary collaboration within HCI, and show knowledge of different views on the research role in the social progress, analyse and evaluate connected issues critically.

All of the above listed skills should be developed during the supervision process. Courses contribute to develop the skills described in 1, 3, 6 and 7. To participate in seminars and journal clubs and to teach and participate in conferences, contribute to develop the skills described in 1, 4 and 5.

Description of possible specialisation

1. Human-Computer Interaction (HCI)

Specification of how the programme outcomes are to be achieved

Currently, the subject has no specializations.

Human-Computer Interaction (HCI)

Description of the specialisation

The main issue in the area of human computer interaction is, how knowledge of man and her activities should influence the design of interactive computer systems. Certain parts of the research domain are more technically oriented and include knowledge of advanced interactive systems and interfaces, while others are focused on in-depth studys of people's use of systems. Recently, design disciplins are an important influence. Also sciences regarding people and technology, such as social view of mankind and ethnology, have obtained more central role in the multidisciplinary HCI. An important factor in the doctoral studies in HCI is human- and behavioural science methodology for user studies including methods for data collection and analysis.

Current research

Computers do not only occur on the desk but are all more often embedded in the physical environment and in other artifacts. Computers are deeply integrated in fields of technology such as telecommunications and interactive media.

The development of the computer networks has made information available for broad groups of people, and created new possibilities for social interaction. These factors increase demand on knowledge of customized design of computer technology, due to people's acceptance and use of computers in broad fields of the everyday life. The design of computer-aids for older and disabled has an increased attention where often innovative fields of technology are involved.

The research in human computer interaction at KTH is within the department Media Technology and Interaction Design.

The research is currently for example in the following areas:

- Computer-aid for communication and the collaboration (e.g. attendance in virtual environments, so-called awarenessystem, collaborative writing, knowledge systems).
- Writing and language technology and its usage within information management, learning and education.
- Advanced forms of interaction and perceptual interfaces, e.g. gesture interaction, haptic interaction.
- Interaction between people and intelligent robots, especially service robots (in collaboration with RPL).
- Methods for user-centered design, development and evaluation of informatics.

Programme structure

The education consists of a course module and a dissertation. The course module includes 60-90 credits for Degree of Doctor and 40-60 credits for Degree of Licentiate. The dissertation usually corresponds to 150-180 credits for Degree of Doctor and 60-80 credits for Degree of Licentiate. The sum of avhandlingsdel and course module should be 240 credits for the Doctor's degree and 120 credits for Degree of Licentiate. An individual study plan should be established, updated and revised annually.

The doctoral student should participate in and contribute to the scientific activity that is carried out at the department, by attending seminars and holding a thesis seminar once a year.

Doctoral students are recommended to devote a certain amount of time (about 20%) of the doctoral studies to education in first-cycle and second-cycle studies. The activities above should be included in the individual study plan.

Compulsory and recommended courses

Courses consists of lectures, seminars, literature courses, laboratory sessions and project assignments. The courses are chosen in consultation with main supervisor regarding the research domain and the aims for the education.

Compulsory course

DM3514 Research methods in Media and communication technology and human computer interaction

Recommendations

An essential part of the courses (at least 30 credits for Degree of Doctor) should be courses for third-cycle studies in human computer interaction or adjacent subjects. It is particularly important that the courses secure the student's interdisciplinary HCI-competence within both behaviour and psycho-social theory and methodology, and fundamentals and applications in computer science. To secure this competence, certain courses can be taken within other subjects. The aim of these courses should be to give advanced competence in the conditions or broadening in some of HCI-area's application field.

KTH's local regulations for the higher education qualifications for third-cycle studies, regulates the level of courses in the course module: for Degree of Doctor, at least 75% of the credits should be third-cycle courses, for Degree of Licentiate 50%. Maximum 5 hp of first-cycle courses may be included in the doctoral degree.

Thesis

The thesis writing should be started as soon as possible. The subject for the thesis should be chosen in consultation with the subject responsible and main supervisor. The subject should be connected to the existing research at the department.

The thesis is a compulsory part of the education for third-cycle studies. This part of the education aims to develop the student's ability to give independent contributions to research, and co-operating to scientific studies within and outside his/her own subject. The thesis should contain new research results that the student has developed alone or in collaboration with others. The main scientific results should meet the required qualifications for publication in internationally renowned papers and conferences with referee system. The studentâs own contribution in the papers of the thesis, which has several authors, must be separately defined.

The thesis should be written in English. It can either be designed as a compilation of scientific articles or as a monographic thesis. In the previous case, there should be a written summary. Irrespective if the thesis is intended to become a monographic or compilation thesis, international publication of achieved results should be sought during the doctoral studies.

Entry requirements and selection

General and special admission requirements and prior knowledge

To be eligible for third-cycle studies in human computer interaction academic undergraduate degree is required or a four-year university education with a relevant HCI-subject specialization, such as a Master of Engineering, Master's degree (60 credits) in HCI or computer science/computer science, behavioural science, cognitive science or communication studies.

Apart from relevant academic degree, special knowledge are required within HCI, and the technical and psycho-social implications of HCI. This knowledge can have been received either through basic higher education or in a different way.

Selection rules and procedures

The programme's degrees and examinations

Degree of Licentiate and Degree of Doctor (PhD)

Graduation for Licentiate degree and Doctoral degree is carried out in accordance with KTH's general rules.

The programme's examinations

No other compulsory tests are included in the education.

The subject plan was approved by Fakultetsnämnden (Faculty Board) November 30, 2010. Valid from Spring 11.

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Doctoral programme — Mediated Communication

Appendix 2: List containing names and subject areas of supervisors within the programme

The programme description was approved by Fakultetsnämnden (Faculty Board) November 30, 2010. Valid from Spring 11.

The programme description was approved by Fakultetsnämnden (Faculty Board) November 30, 2010. Valid from Spring 11.

Appendix 2, page 1 of 1

Doctoral programme — Mediated Communication

Appendix 3: Presentation of the programme's national and international network

The programme description was approved by Fakultetsnämnden (Faculty Board) November 30, 2010. Valid from Spring 11.

The programme description was approved by Fakultetsnämnden (Faculty Board) November 30, 2010. Valid from Spring 11.

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