DA236X Degree Project in Computer Science and Engineering, specializing in Systems, Control and Robotics, Second Cycle 30.0 credits

Examensarbete i datalogi och datateknik med inriktning mot systemteknik och robotik, avancerad nivå

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

Establishment

On 2019-10-15, the Head of School of EECS has decided to establish this official course syllabus to apply from the spring semester 2020 (registration number J-2019-2447).

Grading scale

P, F

Education cycle

Second cycle

Main field of study

Computer Science and Engineering

Specific prerequisites

- All courses that are required for issuing the Degree of Bachelor and at least 60 credits of courses for second-cycle studies should be fully completed. These 60 credits should include all courses in the programme(s) [1] relevant to the degree project, as well as a course in philosophy of science.
- A course in research methodology must be reported as completed with a passing grade.

Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

Intended learning outcomes

The degree project [1] has as aim that the student should apply and deepen knowledge, understanding, abilities and approach within the context of the education. The degree project shall be carried out towards the conclusion of the education and imply a specialised study and synthesis of earlier acquired knowledge. In the degree project both the technical/scientific content and method knowledge are emphasised.
After completed degree project, the student should show such proficiency that is required to work independently as a Master of Science in Engineering/Master of Science, according to the national qualitative targets for the Degree of Master of Science in Engineering and Degree of Master of Science in the Higher Education Ordinance. These include:

- considerably advanced knowledge within the main field of study/the specialisation for the education, including advanced insight into current research and development work,
- specialised methodological knowledge within the main field of study/the specialisation for the education,
- ability to participate in research and development work and so contribute to the formation of knowledge,
- ability to, with a holistic approach, critically, independently and creatively identify, formulate, analyse, assess and deal with complex phenomena and issues, even with limited information,
- ability to plan and use appropriate methods to undertake advanced tasks within predetermined parameters, as well as to evaluate this work,
- ability to create, analyse and critically evaluate different technical/architectural solutions,
- ability to critically and systematically integrate knowledge and ability to identify the need of additional knowledge,
- ability to orally and in writing be able to clearly present and discuss their conclusions, as well as the knowledge and arguments on which they are based,
- ability to within the frames of the degree project identify the role of the scholarship and the engineer in the society,
- ability to within the frame of the specific degree project be able to identify which issues that need to be answered in order to observe relevant dimensions of sustainable development, and

- ability to within the frames of the degree project assess and show awareness of ethical aspects of research and development work, with respect to methods, working methods and results of the degree project.

[1] Also designated independent project

Course contents

Learning activities
Before beginning working with the degree project, the student must have identified an appropriate subject or task for such a project, so that this may be presented to the examiner for approval. The assignment should be chosen so that it implies a natural progression of the knowledge and skills that have been acquired within the education and in a possible specialisation within the education.
The student must write an individual plan for the degree project, in which the problem description/assignment and the preconditions for the implementation of the work are specified. The individual plan for the degree project should contain background including problem description and scientific problem statement, aim, objective, demarcations, the project's relevance [1], methods and time plan for the implementation of the degree project. The plan should also include a brief self-reflection, where the student gives an account of his or her knowledge and ability to complete the project [2]. The individual plan for the degree project shall be approved by the examiner.
The student carries out an in-depth pre-study including discussions of method choice and theoretical background with a literature study that is reported as part of a draft to a preliminary version of the written degree project report.
The student carries out an individual independent project, where knowledge and methods from the education are applied.
The student plans and carries out an oral presentation and defence of his or her degree project.
The student should participate actively in two oral presentations of second-cycle degree projects.
The student carries out an oral and written review of another degree project of the same cycle.
The student writes and presents a written degree project report, where the student clearly accounts for and discusses own conclusions in the degree project and the knowledge and the arguments that underpin them.
The student carries out a self-assessment of the degree project according to the template for **assessment of the quality of the degree project**. [1] With relevance, we mean relevance in relation to the education, current research and development, in relation to the specialisation that the student is studying, as well as relevance for stakeholders and society. [2] The student should submit a draft of this part together with the initial project proposal prior to admission to the degree project course. A plan for completion of outstanding incomplete courses necessary for the program of education, should be included in the plan for the degree project. All courses must be completed by the time the degree project is finished, at the latest.

Examination

- XUPP - Degree project, 30.0 credits, grading scale: P, F

Based on recommendation from KTH's coordinator for disabilities, the examiner will decide how to adapt an examination for students with documented disability.

The examiner may apply another examination format when re-examining individual students.

If the course is discontinued, students may request to be examined during the following two academic years.

Other requirements for final grade

- An individual plan for degree project
- Active attendance at two oral presentations of second-cycle degree projects [1]
- Pre-study, discussion of method choice and literature study
- Self-assessment report
- An oral presentation
- A written and oral review (public discussion) of another student's second-cycle degree project
- Written report with summary/abstract in both Swedish and English

Time limit: Requirements according to KTH's regulatory framework for degree projects, and all examination parts as above should be approved within a year from the start of the degree project. Otherwise, the degree project will be ended with a failed grade, unless special circumstances apply.
In agreement with the KTH coordinator for disabilities, it is the examiner who decides to adapt an examination for students in possession of a valid medical certificate documenting a disability. [1] It is recommended that the active attendance at oral presentations takes place early in the process. The attendance may be given credit for, if it has been included in earlier courses. The attendance can also take place on the student's own initiative before the course is started; then there need to exist written documentation on the active attendance.

Ethical approach

- All members of a group are responsible for the group's work.
- In any assessment, every student shall honestly disclose any help received and sources used.
- In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution.