IL142X Degree Project in Electronics and Computer Engineering, First Cycle 15.0 credits

Examensarbete inom elektronik och datorteknik, grundnivå

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

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

Establishment

The official course syllabus is valid from the spring semester 2025 in accordance with the decision from the director of first and second cycle education: J-2024-1304.Decision date: 2024-10-15

Grading scale

P, F

Education cycle

First cycle

Main field of study

Technology

Specific prerequisites

In order to start a degree project, at least 135 credits from completed courses from the programme syllabus are required and that courses considered relevant to the degree project

have been passed. The student's prerequisites for carrying out and completing the degree project are assessed and approved by the examiner before course registration.

Language of instruction

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

Intended learning outcomes

The purpose of the degree project is that the student shall apply and deepen knowledge, understanding, abilities, and approaches within the contexts of the education. The degree project should be carried out at the end of the education and imply a specialised study and synthesis of earlier acquired knowledge.

After completing the degree project, the student shall demonstrate the knowledge and skills required to work autonomously as a graduate engineer according to the national goals for engineer in Higher Education Ordinance. These include:

Knowledge and understanding

The student shall:

- demonstrate knowledge of the disciplinary foundation of the engineering field chosen and proven experience in this field as well as awareness of current research and development work, and
- demonstrate broad knowledge in the engineering field chosen and relevant knowledge of mathematics and the natural sciences.

Skills and abilities

The student shall:

- demonstrate the ability to, and with overall view, identify, formulate and deal with issues autonomously and creatively and to analyse and evaluate different technological solutions
- demonstrate the ability to use knowledge, critically and systematically, to model, simulate, predict and evaluate series of events on the basis of relevant information
- demonstrate the ability to plan and with appropriate methods undertake tasks within predetermined parameters
- demonstrate the ability to design and manage products, processes and systems while taking into account the circumstances and needs of individuals and the targets for economically, socially and ecologically sustainable development set by the community,
- demonstrate the capacity for teamwork and collaboration with various constellations, and
- demonstrate the ability to present and discuss information, problems and solutions in speech and writing and in dialogue with different audiences.

Judgement and approach

The student shall:

- demonstrate the ability to make assessments informed by relevant disciplinary, social and ethical aspects
- demonstrate an understanding in and insight into the possibilities and limitations of the technology, its role in the society and the responsibility of the individual for how it is used, included social and economic aspects as well as environmental and occupational health and safety aspects and working environment aspects, and
- demonstrate the ability to identify the need for further knowledge and undertake ongoing development of his or her skills.

Course contents

The degree project complete the degree programme. The work can be carried out at a department within the higher education institution, in the industry or at other higher education institution/university in Sweden or abroad.

The degree project is carried out in pair with other student or, in exceptional cases, individually. If the degree project is carried out in pairs with other student, it is important that each individual's contributions can clearly be distinguished so fair grading can be made.

Before the degree project course starts, the student shall identify an appropriate degree project task and formulate a project proposal that can be presented to the examiner for approval. The assignment must be chosen, so that it implies a natural progression of the knowledge and skills that have been acquired within the education.

After project proposal has been accepted, the student designs an individual plan for the degree project and starts the work where knowledge and methods from the education are applied.

The work must build on a scientific foundation and engineering experiences and contain parts of investigation and analysis. Practically construction work can be part of the work and shall mainly intend to verify set models and theories for solving the assignment, as well as be an application of chosen scientific and engineering methodology.

The student completes the course with an oral presentation and defend own work, as well as an opposition on other student's degree project work and a self-assessment.

Language of instruction are Swedish or English.

The report, with appendices, can be written in Swedish or English. Title and summary are always stated in both languages.

Learning activities

Before the degree project course starts, the student shall identify an appropriate degree project task and formulate a project proposal that can be presented to the examiner for approval. The assignment must be chosen, so that it implies a natural progression of the knowledge and skills that have been acquired 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 include a background including a problem description and scientific aspects/question formulations, purpose(s), goals, delim-

itations, the relevance of the project, methods and time schedule for the implementation of the degree project. The individual plan shall also include a brief self-reflection where the student accounts for his knowledge to carry out the assignment and the planning for how potential remaining courses, that are required for higher education qualification, shall be completed. 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 a 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 oral presentation and defence of his or her degree project.

The student carries out an oral and written review of another degree project on the same level.

The student writes and presents a written degree project report, where the student clearly presents and discusses own conclusions in the degree project and the knowledge and the arguments that support them.

The student carries out a self-assessment of the degree project according to the model for "Assessment of quality of degree project for Bachelor of Science in Engineering". The self-assessment is enclosed as appendix in the degree project report.

Examination

- XUPP - Degree Project, 15.0 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.

In XUPP is included:

- individual plan for degree project
- active attendance at two oral presentations of degree project for first-cycle studies
- pilot study, literature study and discussion of method choices
- oral presentation
- qritten and oral review of another student's degree project for first-cycle studies
- written report with title and summary/abstract both in Swedish and English
- self-assessment report

Other requirements for final grade

All examination parts must be approved within one year from the start date of the degree work. Otherwise, the degree project will be ended with a failed grade, unless special circumstances apply.

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.