



IL2232 Embedded Systems Design Project 15.0 credits

Designprojekt i inbyggda system

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

Establishment

The head of school at the school of electrical engineering and computer science has 13/10/2020 determined to establish this official course syllabus to apply from autumn term 2021, registration number: J-2020-1955.

Grading scale

P, F

Education cycle

Second cycle

Main field of study

Electrical Engineering

Specific prerequisites

Completed course equivalent to IL2206 Embedded Systems.

Active participation in a course offering where the final examination is not yet reported in LADOK is considered equivalent to completion of the course.

Registering for a course is counted as active participation.

The term 'final examination' encompasses both the regular examination and the first re-examination.

Language of instruction

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

Intended learning outcomes

After passing the course, the student shall be able to

- Based on an embedded system including hardware and software, write a definition and specification of the system that should be designed
- Apply research and data collection methods in a design project
- plan and carry out design project (this includes estimate of time, budget, organisation of project group, technical documentation and quality assurance)
- design, integrate, operate and test one or more embedded computers or systems
- discuss questions around ethics, sustainability and professionalism connected to the project.

Course contents

Capstone design project that extends over a period of 16-24 weeks where the students work in groups of approximately 5 members per project.

During the introduction of the course, the students study project management, and learn how to carry out a project in groups. During the practical part of the course, the theory from the project management is applied. The practical part of the course starts with a concept phase followed by a design phase. In these phases, the students work with a supervisor from the faculty or industry. The students organise their plans and decide with which technology and within which area their project should be carried out. The area should reflect courses and skills the students have taken part of earlier during their education. Relevant project methods will be applied such as concept generation, product definition, time planning, resource allocation and associated skills.

During the implementation phase, the students design and implement a prototype. This will take place in a practical environment that reflects the methods and processes that are used in commercial engineering work. The students have access to special seminars, for example "rapid prototyping" and "production of circuit boards", which give them the practical skills that are needed to substantiate their designs. The students have weekly meetings with their supervisors and mentors.

In the final phase, the students optimise their design, develop and evaluate their results in a real evaluation or test environment. In this operational phase of the course, students will evaluate functionality and quality of their work, collect data whether their product achieves the intended results, and efficiently communicate the results of their project work through documentation, presentations, demonstrations and, where appropriate, distribution.

During all the moments of the course, the students' own technical expertise is the foundation for continued learning. The technology is put into a larger context in relation to the knowledge of other students through joint assignments and cooperations. Strong emphasis is placed on oral and written presentation, and applied technical skills.

Examination

- PRO1 - Project management, 4.5 credits, grading scale: P, F
- PRO2 - Project CDIO, 10.5 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.

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.