IL2229 Embedded Electronics Design Project 15.0 credits

Designprojekt i inbyggd elektronik

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

Course syllabus for IL2229 valid from Spring 2015

Grading scale

P, F

Education cycle

Second cycle

Main field of study

Electrical Engineering

Specific prerequisites

- IL2217 Digital design
- IL2206 Embedded Systems

Language of instruction

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

Intended learning outcomes

On completion of the course, the students are expected to reach skills within the following fields:

- Based on an embedded system including hardware and software, write a definition and specification of the system that should be designed.
- Use applied research and data collection methods on a design project.
- Planning and implementation of a design project. This includes estimate of time and budget, organisation of a project group, technical documentation and quality assurance.
- Practical knowledge of design, integration, inauguration and testing of an or several embedded computers or system.
- Ethics, sustainability and professionalism.

Course contents

Capstone design projects extend over a period of 16-24 weeks where the students work in groups of approximately 5 members.

The first two the quarters of the course are concept and design phases. At this stage, the students work with a counsellor from the faculty and possible industrial mentor. The students organise their plans and decide with which technology and within which product area their project should be carried out. The field should reflect courses and skills the students have taken part of earlier during his education. Relevant project methods will be applied such as koncept generation, product definition, time planning, resource allocation and thereby associated skills.

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

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

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

Course literature

Varying depending on available project.

Examination

- PRO1 - Project- Planning/Concept Studies, 3.0 credits, grading scale: P, F
- PRO2 - Project- Design, 3.0 credits, grading scale: P, F
- PRO3 - Project- Implementation, 3.0 credits, grading scale: P, F
- PRO4 - Project- Test, 3.0 credits, grading scale: P, F
- PRO5 - Project- Operate, 3.0 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.

Assessment of written report with technical documentation and demonstration of the completed project and prototypes.

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.