EN1020 Project Course in Electrical Engineering, part II 6.0 credits

Elektroprojekt, del II

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

Establishment

Course syllabus for EN1020 valid from Autumn 2016

Grading scale

A, B, C, D, E, FX, F

Education cycle

First cycle

Main field of study

Technology

Specific prerequisites

To be eligible a student must be enrolled in CELTE programme, have satisfactorily fully completed year 1. To take EN1020 a student must also be taking EI1220 Theoretical electrical engineering at the same time.

Language of instruction

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

Intended learning outcomes

After the course, the students should be able to:

- plan and carry out a project.
- tackle a problem from a system perspective by designing, building and improving a product, using knowledge gained from other courses in the programme. This requires particularly ability to evaluate and make simplifications that reduce the problem to an elementarily computable complexity.
- Describe the requirements of a product by creating a simple specification.
- independently and also working with a team, be able to formulate, evaluate and choose a technical solution for a given problem.
- make a design that lives up to the requirements of the specification by applying knowledge from earlier courses but also by searching for new knowledge where it is necessary.
- build a product based on one's own design, ensure that the product functions and, when necessary, make improvements.
- understand that there are various ethical perspectives to bear in mind in all forms of product development.
- document and communicate technical results orally and in writing, creating both report and poster.
- reflect on, evaluate and critically review one's own and others' technical solutions.

Course contents

Courses EN1020 is a project course that builds on several key courses in the programme Electrical engineering such as Theoretical electrical engineering, Time continuous signals and systems, Discrete-time signals and systems, Classical physics, mechanics and waves and a future course in measuring techniques. Special focus is on building further on the course Project in Electrical Engineering from the first year of the programme, but knowledge from several of the parallel courses in the second year is also useful. During the course, a project is carried out that primarily gives the students a system perspective on a particular question. The intention is that students take a project through all stages in a product's development, from defining the requirements for a product, designing it, implementing the design and finally to stay with the design chosen, improving the product without changing the design.

An initial lecture about models is presented, and after that, a number of presentation sessions will be included in the course, as well as a role-play session, where the students acquaint themselves with the ethical problems an engineer may meet in connection with product development, when products can be used for various purposes.

Disposition

The first step in the course is that students make a specification of requirements for the task selected and plan the implementation. Thereafter, a detailed design or construction for solving the task must be developed and presented. After the design is approved the student build it in a lab. When the product is completed it must be demonstrated, showing how requirements have been met, or problems solved. Finally, the solution will be analysed in comparison with the design. Supplementary measurements are carried out if neccessary and everything will be documented in a report for peer-review.

During the course a role play will also be carried out concerning ethics in connection with the development of new products.

Course literature

Depends on the project assignment

Equipment

Student enrolled in this course will be given access to the student laboratory, after completing an introduction to the lab

Need for any other equipment depends on the project assignment

Examination

- INL1 - Assignment - Design, 1.0 credits, grading scale: P, F
- PRO1 - Projekt, 3.0 credits, grading scale: P, F
- INL2 - Assignment - Report, 1.5 credits, grading scale: P, F
- INL3 - Assignment - Per review, 0.5 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.

Other requirements for final grade

See description of course

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.