



El2520 Electromagnetic Engineering, Project Course 9.0 credits

Elektroteknisk teori och konstruktion, projektkurs

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

Establishment

Course syllabus for El2520 valid from Autumn 2014

Grading scale

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

Education cycle

Second cycle

Main field of study

Electrical Engineering

Specific prerequisites

120 hp and English B or equivalent. Knowledge of Electrical Circuit equivalent EI1110, in electromagnetic theory equivalent EI1200 and EI1210 and modeling equivalent EI2433.

Language of instruction

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

Intended learning outcomes

The course aim is that the participants after completing the course in the form of a projects should be able to define, plan, and carry out a technical feasibility study with respect to proposed electrical components and systems.

After the course, participants will be able to

- organize a project for the implementation of a complex task
- plan a project group's work with respect to the boundaries between the project members' functions and tasks
- schedule the work so that the work can be performed within a set time frame and such that an uniform and equitable division of labor between project members can be achieved
- write status reports of a project at predetermined times
- write a project report, where apart from the background, methods, implementation, results obtained and conclusions are included
- evaluate the quality of labor of an executed project
- in oral form present a project for clients and the public

Course contents

The course is conducted in project groups of 4-5 students. After an introduction including modeling and project management these are awarded a number of projects or tasks related to the development of new electrical components and systems. Course implementation is done by working with them. This requires knowledge taught at the courses provided by the department. Since the various project tasks require different skills is a first task to identify the specific knowledge needs of each individual project. The collection of the necessary knowledge is achieved through direct participation in the given courses, but it is in many cases necessary to independently find and assimilate this knowledge that is available in the form of courseware for the given courses in the department.

A second task is to distribute the group work to acquire the necessary knowledge for the project and make a schedule for implementing the project.

The project task consists of a theoretical investigation of whether a proposed technical solution of a problem related to an electromechanical component or system is possible to realize practically. This study will then be verified experimentally using a scaled down concept prototype or a physical device.

To limit the scope of the experimental section, the theoretical study is used to identify what is critical for the proposal to be implemented in a practical application.

Since limited resources are available for the experimental work, it is necessary to use and interpret the results from the theoretical study, which normally includes a simulation model of the current component or system.

Disposition

Presentation of the background to the problem, the problem, the implementation of the theoretical and experimental work, results, interpretation of results and conclusions are made in writing in the form of a project report.

The project will also be presented orally to the principal, all the participants and other interested parties.

Project team members during the project have had various functions and been given different tasks. A description of this and how the project team worked with an evaluation of the quality of work performed will be done in a separate report.

Course literature

Beror på projektet och bestäms av projektgruppen.

The course literature consists in large part of selected parts of the learned in earlier courses given by the Department.

Equipment

Equipment for power supply, measurement, recording, and analysis of currents and voltages associated with the experimental verification.

Examination

- PRO2 - Project Task 2, 4.0 credits, grading scale: A, B, C, D, E, FX, F
- PRO1 - Project Task 1, 3.0 credits, grading scale: A, B, C, D, E, FX, F
- PRO3 - Project Task 3, 2.0 credits, grading scale: A, B, C, D, E, FX, 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.

Performance is reported as the three subprojects

- PRO1 : project management, structuring of work , preparation of schedule
- PRO2 : identification of additional knowledge needs, implementation , demonstration of technical and physical knowledge and skills
- PRO3 : evaluation of the technical solution , reports and oral presentations

Other requirements for final grade

Pass grades in all examination parts.

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.