



## **Electronic Design and Implementation, 7.5 credits**

Elektronikkonstruktion, 7.5 hp

First level

Progression: 31-60

Main field: Electronics

Syllabus is adopted by the School of Information Science, Computer and Electrical Engineering (2009-03-12), effective starting autumn 2009.

### **Placement in the Academic System**

The course is included in Electrical Engineering with Emphasis on Wireless System Design 60 credits. The course can be included in the Computer, Electrical and Mechanical Engineering Programmes 180 credits.

### **Prerequisites and Conditions of Admission**

Electronics 7.5 credits and Signals and Systems 7.5 credits.

### **Course Objectives**

The main objective of the course is to provide students with the opportunity to make their own circuit boards using analogue constructions which can also include digital circuits.

Following successful completion of the course the student should be able to:

#### Knowledge and understanding

- simulate electronic connections using available models
- draw electrical circuit diagrams and circuit layouts and construct circuits

#### Skills and abilities

- explain, implement and understand design flows from an idea / concept to the finished circuit board

#### Judgement and approach

- establish relevant requirements based on an idea
- test and verify that the demands from the idea agree with the finished construction

### **Primary Contents**

- IC circuits: study of components and spreadsheets.
- Construction methodology.

- Circuit board design. schematic diagrams and layouts.
- Extending knowledge within the electronics area, depending on projects.

### **Teaching Formats**

Teaching consists of lectures, laboratory work and project work. The course has been put together in project form. Part of the part involves carrying out an electronic construction from beginning to end. All phases should be involved such as the specification of requirements, construction / development, simulation and realization of the pattern card. Computer-based tools for circuit simulation, representation of circuit diagrams and pattern layouts will be used.

Teaching consists largely of supervision of project work, laboratory sessions and some lectures. Project tasks will normally be carried out in groups of 1-3 students. Participation in the practical sessions is obligatory.

### **Examination**

The overall grades of Fail, 3, 4 or 5 will be awarded for the course.

Working materials from project work will be presented both in writing and in oral form.

### **Course Evaluation**

Course evaluation is part of the course. This evaluation should offer guidance in the future development and planning of the course. Course evaluations should be documented and made available to the students.

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## **Course Literature**

All course material is supplied by the University.