

*Course syllabus*

# Kretskortsdesign och prototypkonstruktion Printed Circuit Board and Prototyping

**EITP15, 7,5 credits, A (Second Cycle)**

**Valid for:** 2023/24

**Faculty:** Faculty of Engineering, LTH

**Decided by:** PLED E

**Date of Decision:** 2023-04-11

## General Information

**Language of instruction:** The course will be given in English on demand

## Aim

To work in a project group is probably the most common situation for an engineer, either as project leader or as a specialist in some area. This course gives the student skills in using knowledge of analogue and digital building blocks, and illustrates industrial developing work.

## Learning outcomes

### *Knowledge and understanding*

For a passing grade the student must

- be able to analyse and describe systems of low and medium complexity
- be familiar with electromagnetic interference and how it may affect an electronic system
- be able to test and repair a construction in a systematic way
- be able to look up and assimilate relevant facts.

### *Competences and skills*

For a passing grade the student must

- be able to realize a system of low and medium complexity
- be able to carry out systematic debugging in an electronic circuit

- be able to move a project forward to a working prototype
- be fluent in oral and written communication

### *Judgement and approach*

For a passing grade the student must

- be able to show insight concerning possibilities and limitations of digital and analogue systems

## Contents

The main part of the course consists of design and create of a PCB with appropriate design tools, and to equip and test the construction. At the beginning of the course some lectures are given in order to support the project activities. Each group of two gets their own lab desk with all the necessary instruments and tools that they can use throughout the course. During office hours supervisors are available for advice and troubleshooting.

## Examination details

**Grading scale:** UG - (U,G) - (Fail, Pass)

**Assessment:** To pass the course, the student must demonstrate a final construction with written documentation. The project must be presented orally, and the student must act as opponent on another student's project.

The examiner, in consultation with Disability Support Services, may deviate from the regular form of examination in order to provide a permanently disabled student with a form of examination equivalent to that of a student without a disability.

## Admission

**Assumed prior knowledge:** EIT020/EITF65 Design of Digital Circuits --- A Systems Approach, EIT070/EITF70 Computer Organisation and ESS010/ETIA01/EITA10 Electronics, or equivalently.

**The number of participants is limited to:** 24

**Selection:** Number of credits within the programme. Priority is given to students enrolled on programmes that include the course in their curriculum.

**The course overlaps following course/s:** EDI021, ETI022, EITF40

## Reading list

- Project specific handouts.
- Manuals and component catalogues are obtainable from the Department.

## Contact and other information

**Course coordinator:** Anders J Johansson, anders\_j.johansson@eit.lth.se

**Course homepage:** <http://www.eit.lth.se/course/>

**Further information:** The course replaces the earlier course EITF40 Digital and analog project. This new updated version is extended with design of PCB using CAD tools, which gives both a more modern view of the construction process, but also more complex constructions.