



Course syllabus

Elektronik Electronics

EITA10, 5 credits, G1 (First Cycle)

Valid for: 2023/24

Faculty: Faculty of Engineering, LTH

Decided by: PLED E

Date of Decision: 2023-04-11

General Information

Main field: Technology.

Compulsory for: D2

Language of instruction: The course will be given in Swedish

Aim

The student should get an understanding for the basics of circuit theory and analysis, and the related electronic components. The student will be able to use this knowledge together with an introduction to the electronic components given in the course to be able to build simple electronic circuits to interface with embedded systems. The student will also get an insight into embedded systems, and the interaction between software-hardware-interface electronics in such systems.

Learning outcomes

Knowledge and understanding

For a passing grade the student must

- be able to describe fundamental circuit theory
- understand the interaction between software-hardware-interface electronics

Competences and skills

For a passing grade the student must

- be able to design and analyse electronic circuits
- be able to connect measurements with theory and analyse measurement accuracy
- be able to describe laboratory experiments and results in a report
- be able to perform electrical measurements in a professional manner

- be able to write a technical report.

Judgement and approach

For a passing grade the student must

- have acquired a good understanding of the field of engineering
- be able to compare and evaluate different electronic solutions
- have knowledge of the compromises necessary when implementing technology.

Contents

The course covers the fundamentals of circuit theory. It covers the basic circuit elements, signals in time and frequency. This is applied on simple circuits, with a primary focus on the interfaces between a microcontroller and the world. The theoretical knowledge is applied in the laboratory exercises.

Examination details

Grading scale: TH - (U,3,4,5) - (Fail, Three, Four, Five)

Assessment: Laboratory, lab reports and online home assignments are required for grade 3 and passing the course. In addition, grade 4 or 5 can be obtained from an optional written exam.

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.

Parts

Code: 0117. **Name:** Examination.

Credits: 2,5. **Grading scale:** TH. **Assessment:** Online home assignments. For grade 4 or 5 a written exam is required. **Contents:** The complete course

Code: 0217. **Name:** Laboratory Work.

Credits: 2,5. **Grading scale:** UG. **Assessment:** Passed laboratory work. **Further information:** The laboratory work is only given once each year.

Admission

The number of participants is limited to: No

The course overlaps following course/s: ESS010, ETE022, ETE115, ETIA01, EITA35, EITF90

Reading list

- Kompendium Grundläggande A/D- och D/A-omvandling.
- Elektronik Laborationshandledning, Elektrovetsenskap.
- Sjöberg, D, Gustafsson, M.: Kretsteori, ellära och elektronik.

Contact and other information

Course coordinator: Iman Ghotbi, iman.ghotbi@eit.lth.se

Course homepage: <http://www.eit.lth.se/course/EITA10>