

Course syllabus

Krets- och mätteknik, fortsättningskurs Circuits and Measurements, Advanced Course

ETEF15, 7,5 credits, G2 (First Cycle)

Valid for: 2023/24

Faculty: Faculty of Engineering, LTH

Decided by: PLED E

Date of Decision: 2023-04-11

General Information

Compulsory for: IEA2

Language of instruction: The course will be given in Swedish

Aim

The aim of this course is to give the students basic knowledge in electronics. The theoretical knowledge is tied to solving problems and practical laboratory work.

Learning outcomes

Knowledge and understanding

For a passing grade the student must

- be able to explain and use basic concepts and measurements methods used in electronic systems.
- be able to explain and use basic concepts about electric and magnetic fields.
- be able to explain the basic functions of common semiconductors.
- be able to explain basic concepts about EMC.

Competences and skills

For a passing grade the student must

- be able to plan and execute measurements in electronic circuits.
- be able to use semiconductor devices and amplifiers in electronic circuits.

Judgement and approach

For a passing grade the student must

- be able to perform calculations and measurements of basic electrical circuits and critically review and evaluate the results

Contents

- Refreshing DC, AC, transfer functions
- Semiconductors
- Filters
- Transistors
- Electric fields.
- Magnetic fields.
- Electromagnetic induction, hazardous induced voltages/currents

Examination details

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

Assessment: Grade 3: passed written examination, passed laboratory preparations, passed laboratory work, approved written laboratory report, approved written project report and oral presentation of project. Higher grades are set from the written examination.

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: 0122. **Name:** Laboratory Work.

Credits: 1. **Grading scale:** UG. **Assessment:** Approved preparation tasks, passed laboratory work and written report. **Contents:** Laboratory work and written report **Further information:** The lab course is only given once a year

Code: 0222. **Name:** Written Exam.

Credits: 4. **Grading scale:** TH. **Assessment:** Approved on written exam. **Contents:** Written exam on the whole curriculum. **Further information:** The final grade of the course is based on the result of this exam.

Code: 0322. **Name:** Project.

Credits: 2,5. **Grading scale:** UG. **Assessment:** Approved report and approved oral presentation.

Contents: Written project report and oral presentation of project.

Admission

Admission requirements:

- Passed laboratories in EITA40/ETE604

The number of participants is limited to: No

Reading list

- Bengtsson, Lars: Elektriska mätsystem och mätmetoder. Studentlitteratur, 2012, ISBN: 9789144080680.
- Karlström, Bill: Kretsanalys. Studentlitteratur, 2017, ISBN: 9789144125725.

Contact and other information

Course coordinator: Johannes Svensson, johannes.svensson@eit.lth.se

Course homepage: <http://www.eit.lth.se/course/etefl5>