Electronics

Programme course

6 credits

Analog elektronik 2

TNGE25

Valid from: 2017 Spring semester

Determined by
Board of Studies for Electrical Engineering, Physics and Mathematics

Date determined
2017-01-25

Main field of study
Electrical Engineering

Course level
First cycle

Advancement level
G2X

Course offered for
- Electronics Design Engineering, M Sc in Engineering

Entry requirements
Note: Admission requirements for non-programme students usually also include admission requirements for the programme and threshold requirements for progression within the programme, or corresponding.

Prerequisites
Analog electronics 1

Intended learning outcomes
After the course students should be able to
- calculate quiscent point and do signal calculations (voltage gain and impedance) for basically amplifiers with bipolar and MOS transistors
- calculate voltage gain for simple differential amplifiers
- argument why to use different current mirrors
- analyze why oscillators of type RC, LC or crystal can oscillate generally requirement for oscillators
- describe how power amplifiers are build and do some simple power calculations and also show if you had to use a cooler
- show principles for how to build linear and switched power supplies

Course content
Different kind of transistors (BJT, MOS), signal models for transistors, amplifiers with transistors, frequency response, power amplifiers, simulation program for electronic circuits, the course is ended with an analog design project.

Teaching and working methods

Education in form of lectures/lessons and laboratory work. The course is finished with a design of a simpler electronic project.
The course runs over the entire autumn semester.

Examination

KTR2	_	0 credits	U, 3, 4, 5
KTR1	_	0 credits	U, 3, 4, 5
LAB1	Laboratory work	1.5 credits	U, G
UPG1	Project Work	1.5 credits	U, G
TEN1	Written examination	3 credits	U, 3, 4, 5

The examination consists of two written tests (KTR1 and KTR2) or with a re-exam (TEN1). If only one out of two written tests is approved the student must retake the written exam, TEN1, for the entire course. The course is passed when both written tests (alternatively TEN1), project work and laboratory work are approved. The final grade for the course is the arithmetic average of the grades from different parts. Two written re-examinations are given during the year (April to August).

Grades

Four-grade scale, LiU, U, 3, 4, 5

Other information

Supplementary courses: Analog/Digital System Design

Department

Institutionen för teknik och naturvetenskap

Director of Studies or equivalent

Adriana Serban

Examiner

Amir Baranzahi

Course website and other links

http://www2.itn.liu.se/utbildning/kurs/

Education components

Preliminary scheduled hours: 44 h
Recommended self-study hours: 116 h

Course literature

Additional literature

Books

Molin, Bengt, *Analog elektronik* 2
ISBN: 978-91-44-05367-7
Studentlitteratur

Common rules

Regulations (apply to LiU in its entirety)

The university is a government agency whose operations are regulated by legislation and ordinances, which include the Higher Education Act and the Higher Education Ordinance. In addition to legislation and ordinances, operations are subject to several policy documents. The Linköping University rule book collects currently valid decisions of a regulatory nature taken by the university board, the vice-chancellor and faculty/department boards.

LiU's rule book for education at first-cycle and second-cycle levels is available at http://styrdokument.liu.se/Regelsamling/Innehall/Utbildning_pa_grund-_och_avancerad_niva.