



Course syllabus

Faculty Board of Science and Engineering
School of Computer Science, Physics and Mathematics

1ED061 El- och reglerteknik, 7,5 högskolepoäng
Electrical and Control Engineering, 7.5 credits

Main field of study
Electrical Engineering

Subject Group
Electrical Engineering

Level of classification
First Level

Progression
G1F

Date of Ratification
Approved by Organisational Committee 2009-08-11

The course syllabus is valid from spring semester 2010

Prerequisites
Knowledge within the field of Basic Mathematics and Calculus 1 or the equivalent.

Expected learning outcomes

Upon completion of the course, the student should be able to:

- have acquired basic knowledge in the field of electrical and control theory
- do simple calculations within electricity, measurements and control techniques
- be able to design a simple system using electronic components
- be able to analyze and explain the construction of a simple technical process

Content

The course comprises the following topics:
Electric systems:

- electric circuits with both DC and AC currents
- electric three-phase-power systems, the synchronous

generator and the induction motor

- electronics, semiconductors, OP-amplifiers
- Boolean algebra, A/D and D/A converters
- measurements technique, transducers
- introduction to the LabVIEW system

Control systems:

- dynamic models for systems of the first and second order
- analysis in the time domain, the Laplace transform
- different types of analogue controllers like PWM and PID
- analyses for stability control
- PLC with Siemens S 7-LAD

Type of Instruction

Teaching consists of lectures, tutorials and laboratory sessions. Activity at some sessions is mandatory.

Examination

The course is assessed with the grades U,3,4 or 5.

On request, students may have their credits translated to ECTS-marks. Such a request must be sent to the examiner before the grading process starts.

Course Evaluation

A written course evaluation will be carried out at the end of the course in accordance with the guidelines of the University. The course evaluation will be filed at the department.

Required Reading and Additional Study Material

Required reading

Haag, Bengt,*Industriell systemteknik*, Studentlitteratur, (1998).Pages 300 (600).

Hultgren, Anders,*Distributed material*, Högskolan i Kalmar.Pages 100 (100).