Linnæus University

Course syllabus

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

1ED102 Elektrisk mätteknik, 7,5 högskolepoäng
Electric Techniques of Measurements, 7.5 credits

Main field of study
Electrical Engineering

Subject Group
Electrical Engineering

Level of classification
First Level

Progression
G2F

Date of Ratification
Approved by the Board of the School of Computer Science, Physics and Mathematics 2009-08-11

Revised 2012-06-08. Literature list is revised.

The course syllabus is valid from autumn semester 2012

Prerequisites
Analogue Electronic Circuits 7.5 credits (1ED012), and Analogue signals and systems 7.5 credits (1ED062) or the equivalent.

Objectives
The course gives an introduction to the large field of electrical measurements. By combining previously acquired knowledge
of primarily mathematics and electronics the student is expected to understand how these subjects are used to give a model for an electric system.

Content
The course comprises the following topics

- Measuring electrical phenomena like current, voltage and frequency
- Transducers for observation of non electric phenomena like position, speed, acceleration, temperature, pressure, airflow
- Amplifiers for weak signals from transducers
- ADC and DAC-converters and DAQ-cards
- Analysis made from step response and frequency response
- Statistics; average value and standard deviation
- Insecurity of measurements, disturbances and filtering
- Introduction to LabVIEW

Type of Instruction
Teaching consists of lectures, tutorials and laboratory sessions.

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. Exam and practicals.

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

Required Reading and Additional Study Material
Required reading
Bengtsson Lars, *Elektriska mätsystem och mätmetoder*, Studentlitteratur, 2012, Pages 416 (645).