Computers in Measurement Systems

Programme course

6 credits

Datoriserade mätsystem

TFMT16

Valid from: 2017 Spring semester

Determined by
Board of Studies for Chemistry, Biology and Biotechnology

Date determined
2017-01-25

Main field of study
Electrical Engineering

Course level
First cycle

Advancement level
G1X

Course offered for
- Chemical Analysis Engineering, B 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
Basic electronics and measurement technology.

Intended learning outcomes
To give good knowledge of how to program and connect sensors to a computer controlled measurement system within technical chemistry. To give experience in planning and working in project form. After the course the student should be able to

- explain principles for and solve problems where the computer is uesd to control a chemical process
- Explain the use of and how to calibrate sensors for the measurement of common chemical quantities
- Explain the function of data acquisition cards and measurement computers
- create simple LabView programs for measuring/controlling with a data acquisition card
- plan and carry through a small project
- write a structured report in a scientifically correct manner

Course content
Basic LabVIEW programming. Use and programming of data acquisition cards. Function and signal conditioning of sensors for measuring common parameters within technical chemistry. Control of simple processes. Project work within chemical analysis engineering. Documentation in the form of a written report.

Teaching and working methods
Lectures, laborations and a project work.

Examination

LAB2	Laboratory work	3 credits	U, G
PRA1	Project, written and oral presentation	3 credits	U, G

Only the grades 'Fail' or 'Pass' are given.

Grades
Two-grade scale, U, G

Department
Institutionen för fysik, kemi och biologi

Director of Studies or equivalent
Magnus Boman

Examiner
Per Sandström

Education components
Preliminary scheduled hours: 49 h
Recommended self-study hours: 111 h

Course literature
Lars Bengtsson: LabView från början, (studentlitteratur). Boken finns att låna i ett antal exemplar

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.