



LUNDS UNIVERSITET
Lunds Tekniska Högskola

Course syllabus

Projektkurs i automatiserade mätsystem

Project Course in Automated Data Acquisition Systems

BMEN40, 7,5 credits, A (Second Cycle)

Valid for: 2023/24

Faculty: Faculty of Engineering, LTH

Decided by: PLED BME

Date of Decision: 2023-04-13

General Information

Elective for: BME4, D5-hs, E4-ss, F4, F4-mt, F4-ss, N4

Language of instruction: The course will be given in English on demand

Aim

The course aims to knowledge of implementation of systems for automated data acquisition. Furthermore, the course aims to provide overview of systems and methods to acquire and transfer measurement data in test- and industry-environments, and also to present methods to program such a system in a structured and logical way.

A project gives the student an opportunity to independently solve a problem for automated data acquisition. The project aims for the student to, on his or her own, to specify the best strategy to collect measurement data for the given problem. The so specified solution shall then be programmed with methods taught in the course. The project is presented orally for the other students, and also in a written report.

Learning outcomes

Knowledge and understanding

For a passing grade the student must

- be able to communicate with an instrument from a computer via various bus interfaces
- be able to sample data using a data acquisition board in ways that optimize for either simplicity, amount of data or speed.

Competences and skills

For a passing grade the student must

- be able to write a program in the graphical language LabVIEW in a logical and structured manner.
- present, both orally and in written form, an automatized solution to a measurement problem

Judgement and approach

For a passing grade the student must

- have an overview of various soft- and hardware solutions for transfer of measurement data to a computer

Contents

The course starts with an introduction, examples and labs. A project with a focus on data acquisition is chosen at an early stage which is then implemented and evaluated. Reporting and demonstration constitute an important part of the projectwork and is introduced at an early stage in the course. The supervisors will be available for questions and discussions and prearranged times.

Examination details

Grading scale: UG - (U,G) - (Fail, Pass)

Assessment: Written report and oral presentation of the project work.

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.

Admission

Assumed prior knowledge: Basic courses in programming and sensor systems.

The number of participants is limited to: 30

Selection: Number of credits within the programme. Priority is given to students enrolled on programmes that include the course in their curriculum.

The course overlaps following course/s: EEMN10

Reading list

- Material from the department.

Contact and other information

Course coordinator: Dr Christian Antfolk, christian.antfolk@bme.lth.se

Course coordinator: Dr Josefin Starkhammar, josefin.starkhammar@bme.lth.se

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Course homepage: <https://bme.lth.se/education/courses/>