



LUNDS UNIVERSITET
Lunds Tekniska Högskola

Course syllabus

Automationsteknik

Automation

EIEF06, 7,5 credits, G2 (First Cycle)

Valid for: 2023/24

Faculty: Faculty of Engineering, LTH

Decided by: PLED E

Date of Decision: 2023-04-11

General Information

Compulsory for: IEA2

Language of instruction: The course will be given in Swedish

Aim

The aim of the course is to give the student basic knowledge in Automation.

The course gives an overview of different kinds of sensors, actuators, communication systems and operator interfaces common in industry. The course is intended to give an overview over

safety, directives and standards. Another ambition of the course is to develop the written communication skills of the students.

Learning outcomes

Knowledge and understanding

For a passing grade the student must

- be able to describe the most common types of sensors and actuators in industry and explain their functionality
- be able to describe the most common types of communication systems in industry
- be able to explain the structure and function of a simple automation system and the interaction between the different parts of the system
- be able to explain basic concepts in Innovation-Entrepreneurship-Intrapreneurship

Competences and skills

For a passing grade the student must

- be able to build a simple automation system with sensors and actuators

- be able to configure and use different modules in an automation system
- be able to establish and configure communication between different components in an automation system
- be able to in a team produce an overview within a specific subject in automation
- be able to write a personal letter
- be able to write a simpler offer

Contents

- Sensors for measurement of temperature, level, pressure, flow and position
- Examples of different types of actuators: DC servos, pneumatic cylinders, valves, frequency inverters, step motors
- Communication systems in automation: AS-i, CANbus, Modbus, PROFIBus, PROFINet, Ethernet
- Use of PLC, DCS, HMI and SCADA
- Safety and directives, emergency stop, LVD, EMC
- Industrial standards
- Genre-adapted written communication
- Introduction to entrepreneurship

Examination details

Grading scale: TH - (U,3,4,5) - (Fail, Three, Four, Five)

Assessment: Passed laboratory exercises and approved assignments are required.

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.

Parts

Code: 0118. **Name:** Written Examination.

Credits: 4. **Grading scale:** TH. **Assessment:** Written examination.

Code: 0218. **Name:** Laboratory Work.

Credits: 3,5. **Grading scale:** UG. **Assessment:** To qualify for a a passing grade the laboratory work must be completed.

Admission

Admission requirements:

- Part 0117 Algebra from the course FMAA50 Calculus

Assumed prior knowledge: FMAA50 Calculus and EITA40 Circuits and Measurements.

The number of participants is limited to: No

The course overlaps following course/s: EIEF05

Reading list

- Jacob Fraden: Handbook of Modern Sensors , Physics, Designs and Applications. Springer, 2016, ISBN: 9783319193038.

Contact and other information

Course coordinator: Mats Lilja, Mats.Lilja@hbg.lth.se

Course homepage: <https://www.lth.se/iea/utbildning/kurser-paa-campus-helsingborg/automationsteknik/>

Further information: Some of the compulsory elements are included in the Ing-Days.