

Course Syllabus

Automation and Control Engineering 7.5 Credits*, First Cycle Level 1

Learning Outcomes

After completion of the course, the student shall be able to:

- Outline the basic principles in control engineering.
- Describe the structure and use of automation systems applied to electrical systems.
- Describe the different concepts and components of a control system as well as how to describe the different rules of a control system using block diagrams and process maps.
- Understand the different process types and be able to characterize processes in terms of their dynamic and static properties.
- Explain the principles and characteristics of PID controller components.
- Describe the different methods for adjusting the regulators.
- Consider practical problems which may arise in the regulation of energy systems.

Course Content

The course deals with basic automation and control systems with both computer tools and manual methods. The course includes basic digital technology, components and parts in a programmable logic automation system. Different methods of programming an automatic system as well as process maps, block diagrams, process models and PID controllers are examined. Further, the setting of regulator parameters and practical problems in the regulation of energy systems are treated. Simulation tools are used for practical applications.

Assessment

Written examination 5.0 credits

Lab report 2.5 credits

Forms of Study

Lectures and compulsory laboratory work performed on site at the university.

Grades

The Swedish grades U, 3, 4, 5.

For laboratory exercises, the student can receive a grade of pass or fail (G - U).
Results from the written examination determine the final grade.

Prerequisites

Electricity Part 2,5 credits

Programming and Numerical Methods 7,5 credits

Subject:

Electrical Engineering

Group of Subjects:

Electrical Engineering

Disciplinary Domain:

Technology, 100%

This course can be included in the following main field(s) of study:

1. No main field of study

Progression Indicator within (each) main field of study:

1. G1F

Approved:

Approved 13 February 2018

Valid from 13 February 2018