



Faculty of Health, Science and Technology
Electrical Engineering

Syllabus

Automatic Control

Course Code:	ELGB17
Course Title:	Automatic Control <i>Reglerteknik</i>
Credits:	7.5
Degree Level:	Undergraduate level
Progressive Specialisation:	First cycle, has less than 60 credits in first-cycle course/s as entry requirements (G1F)

Major Field of Study:
ETA (Electrical Engineering)

Course Approval

The syllabus was approved by the Faculty of Health, Science and Technology 2020-03-11, and is valid from the Autumn semester 2020 at Karlstad University.

Prerequisites

Registered on courses equivalent to 22.5 ECTS credits of Mathematics in an Engineering programme, with 15 ECTS credits completed, and registered on a course in Electrical Engineering, Programming, or Energy Systems (7.5 ECTS credits), or equivalent

Learning Outcomes

Upon completion of the course, students should be able to:

- give an account of basic concepts related to linear dynamic systems,
- describe linear dynamic systems using mathematical models,
- use mathematical models to analyse the properties of linear dynamic systems in the time and frequency domains, and

- use analysis results to design controllers for linear dynamic systems to meet required specifications.

Content

Basic concepts related to linear dynamic systems. Mathematical models for linear dynamic systems. Analysis of the properties of linear dynamic systems in the time and frequency domains. The servo problem and the regulator problem. Feedback. Specifications for linear dynamic systems in the time and frequency domains. Control design for linear dynamic systems. Examples of automatic control applications.

Reading List

See separate document.

Examination

Assessment is based on a written exam and written reports.

If students have a decision from Karlstad University entitling them to special pedagogical support due to a documented disability, the examiner has the right to give such students an adapted examination or to examine them in a different manner.

Grades

One of the grades Distinction (VG), Pass (G), or Fail (U) is awarded in the examination of the course. For students in Engineering programmes, one of the grades 5 (Pass with Distinction), 4 (Pass with Some Distinction), 3 (Pass), or U (Fail) is awarded in the examination of the course.

Quality Assurance

Follow-up relating to learning conditions and goal-fulfilment takes place both during and upon completion of the course in order to ensure continuous improvement. Course evaluation is partly based on student views and experiences obtained in accordance with current regulations and partly on other data and documentation. Students will be informed of the result of the evaluation and of any measures to be taken.

Course Certificate

A course certificate will be provided upon request.

Additional information

The local regulations for studies at the Bachelor and Master levels at Karlstad University stipulate the obligations and rights of students and staff.