Reg No: ELGB17/20252

Faculty of Health, Science and Technology
Electrical Engineering

Syllabus

Automatic Control

Course Code:	ELGB17
Course Title:	Automatic Control *Reglerteknik*
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 2025-01-22, and is valid from the Autumn semester 2025 at Karlstad University.

Prerequisites
Registered on courses equivalent to 22.5 ECTS credits of Mathematics in an Engineering programme, and registered on a course equivalent to 7.5 ECTS credits in Electrical Engineering, Programming, or Energy Systems, 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, mandatory laboratory sessions, and written lab reports.

If students have a decision from Karlstad University entitling them to Targeted Study 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.