



Faculty of Health, Science and Technology
Electrical Engineering

Syllabus

Electrical Installations and Introduction to Electrical Power System Protection

Course Code:	ELGC21
Course Title:	Electrical Installations and Introduction to Electrical Power System Protection <i>Elinstallationer och introduktion till skyddssystem i elkraftsystem</i>
Credits:	7.5
Degree Level:	Undergraduate level
Progressive Specialisation:	First cycle, has at least 60 credits in first-cycle course/s as entry requirements (G2F)

Major Field of Study:
ETA (Electrical Engineering)

Course Approval

The syllabus was approved by the Faculty of Health, Science and Technology 2020-08-28, and is valid from the Spring semester 2021 at Karlstad University.

Prerequisites

Electrical Power Systems (10 ECTS credits), or registered in the Electrical Engineering programme, or equivalent

Learning Outcomes

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

- give a general account of electricity legislation,
- use legal frameworks for electrical installations,
- plan electrical low voltage installations in accordance with regulations, manually and using software,

- create bills of materials for electrical installations,
- describe earthing systems for low voltage installations, and
- perform calculations related to the protection of electrical power systems.

Content

- Planning electrical installations for low voltage using electrical standards
- Requirement analysis, estimating capacity for lighting and heat
- Structuring electrical systems
- Distribution and dimensioning of groups
- Safety regulations for electrical installations (personal protection, fire safety, and operational reliability)
- Protective equipment (overcurrent, earth protection, and overvoltage protection)
- Selectivity
- Earthing systems
- Voltage quality
- Using software for the planning of electrical installations
- Project report
- Instrument transformers
- Relays, fuses, and reconnectors
- Protection zones
- Protection of transformers, wires, and radial systems

Reading List

See separate document.

Examination

Assessment is based on a written exam, project reports, hand-in assignments, mandatory laboratory sessions, and laboratory 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 Engineering students, one of the grades 5 (Pass with Distinction), 4 (Pass with Some Distinction), 3 (Pass), 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.