



## Course syllabus

Faculty of Technology

Department of Physics and Electrical Engineering

1ED433 Elkraftsystem, 7,5 högskolepoäng

Electric Power Systems, 7.5 credits

**Main field of study**

Electrical Engineering

**Subject Group**

Electrical Engineering

**Level of classification**

First Level

**Progression**

G1F

**Date of Ratification**

Approved 2018-01-08

Revised 2019-03-13 by Faculty of Technology. Revise of literature.

The course syllabus is valid from autumn semester 2019

**Prerequisites**

Electric Power Engineering, 7.5 credits (1ED033) or equivalent.

### Objectives

After completing the course, students should:

- be able to explain basic concepts of power systems.
- have good knowledge of electrical manuals and regulations for the dimensioning of cables and wires.
- be able to design short-circuit and overload protection
- have knowledge of the structure of the electric power grid
- have knowledge of alternative renewable energy production

### Content

The course includes the following topics:

- Structure of the electric power grid
- Power quality, EMC
- Electrical power measurement techniques
- High current regulations
- Dimensioning of electrical conductors
- Financial calculations
- Electrical power components
- Renewable electricity generation
- Future development

## Type of Instruction

The teaching consists of lectures, tutorials and laboratories. Some parts require mandatory attendance. Information about compulsory elements etc. will be announced at the start of the course.

## Examination

The course is assessed with the grades A, B, C, D, E, Fx or F.

The grade A constitutes the highest grade on the scale and the remaining grades follow in descending order where the grade E is the lowest grade on the scale that will result in a pass. The grade F means that the student's performance is assessed as fail (i.e. received the grade F).

The assessment of student performance is based on laboratories and a written exam.

## Course Evaluation

During the course or in close connection to the course, a course evaluation is to be carried out. The result and analysis of the course evaluation are to be communicated to the students who have taken the course and to the students who are to participate in the course the next time it is offered. The course evaluation is carried out anonymously. The compiled report will be filed at the Faculty.

## Credit Overlap

The course cannot be included in a degree along with the following courses of which the content fully, or partly, corresponds to the content of this course: Overlaps entirely with 1ED133, 7.5 credits.

## Other

Grade criteria for the A–F scale are communicated to the student through a special document. The student is to be informed about the grade criteria for the course by the start of the course at the latest.

## Required Reading and Additional Study Material

### Required reading

1. Ned Mohan, Electric power systems - A first course, Wileys, latest edition, 185 (245) pages.
2. Current version of The National Electrical Safety Board's regulations and general advice on electrical installations (Regulations for electrical installations), pdf. In total 32 pages.