EI2439 Power System Protection 6.0 credits

Skyddssystem i elkraftsystem

This is a translation of the Swedish, legally binding, course syllabus.

If the course is discontinued, students may request to be examined during the following two academic years

Establishment

The official course syllabus is valid from the autumn semester 2021 in accordance with Head of School decision: J-2021-0561. Decision date: 15/04/2021

Grading scale

A, B, C, D, E, FX, F

Education cycle

Second cycle

Main field of study

Electrical Engineering

Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

Intended learning outcomes
After passing the course, the student shall be able to

- give an account of basic concepts in power system protection
- solve standard problems from the major part of the course content.

To obtain higher grades, the student shall be able to

- with progression in both completeness and width, make clear and justified assessments and calculations from all parts of the course content including problems that require synthesis from different parts of the course content and qualifying courses.

Course contents

- consequences of errors in components of electric power systems
- electric dangers for people and property
- protection against excess currents at low voltage
- protection against current breakdown in low voltage plants
- measurement transformers and other sensors
- different generations of protection relays
- system grounding and grounding faults in distribution networks at medium voltage
- protection principles in distribution networks including current and/or time
- protection of transmission lines: differences
- differential protectors and distance protectors
- transformer faults and protective system
- dynamos and engines
- new challenges: sustainable development, the dynamos of new blows, DC-circuits, higher speed, new algorithms, more communication.

Specific prerequisites

Knowledge in power system components and substation design, 6 higher education credits, equivalent to completed course EI2436.

Knowledge in analysis of electric power system, 6 higher education credits, equivalent to completed course EG2100.

Active participation in a course offering where the final examination is not yet reported in LADOK is considered equivalent to completion of the course. Registering for a course is counted as active participation. The term 'final examination' encompasses both the regular examination and the first re-examination.

Examination

- PRO1 - Project Work, 3.0 credits, grading scale: P, F
- TEN1 - Written Examination, 3.0 credits, grading scale: A, B, C, D, E, FX, F

Based on recommendation from KTH’s coordinator for disabilities, the examiner will decide how to adapt an examination for students with documented disability.

The examiner may apply another examination format when re-examining individual students.

**Ethical approach**

- All members of a group are responsible for the group’s work.
- In any assessment, every student shall honestly disclose any help received and sources used.
- In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution.