EI2439 Power System Protection 6.0 credits

Skyddssystem i elkraftsystem

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

Establishment

On 04/21/2020, the Head of the EECS School has decided to establish this official course syllabus to apply from autumn semester 2020, registration number: J-2020-0586.

Grading scale

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

Education cycle

Second cycle

Main field of study

Electrical Engineering

Specific prerequisites

Completed courses equivalent EI2436 Power Grid Technology and Substation Design and EG2100 Power System Analysis.

Active participation in a course offering where the final examination is not yet reported in LADOK is considered equivalent to completion of the course. This applies only to students who are first-time registered for the prerequisite course offering or have both that and the applied-for course offering in their individual study plan.

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 should be able to

- present basic concepts and 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 faults in components of electric power systems
- electric hazards to people and property
- overcurrent protection in low-voltage systems
- electric shock protection
- instrument transformers and other sensors
- different generations of protection relays
- system earthing and earth-faults in medium voltage distribution networks
- protection principles in distribution networks including time and overcurrent
- protection of transmission lines: differences from distribution
- differential protection and distance protection
- transformer faults and protection schemes
- generators and motors
- new challenges: sustainable development, new types of generator, DC-networks, higher speed, new algorithms, more communication

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.

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

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.