



FEI3354 Power Transformers, Advanced Course 8.0 credits

Krafttransformatorer, fördjupningskurs

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

Course syllabus for FEI3354 valid from Spring 2013

Grading scale

Education cycle

Third cycle

Specific prerequisites

The participant must be a registered PhD student in the program of Electrical Engineering

Language of instruction

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

Intended learning outcomes

The aim of the course is to render comprehensive knowledge about the build-up, modeling, and protection system of power transformers. Another goal is to accomplish insight

regarding detailed power transformer features as loss phenomena, stray fields, impedance characteristics, insulation design etc. The overall intention with the course is to make it possible for the course participants to contribute in the development of new transformers.

Course contents

- Transformer fundamentals
- Structural design
- Impedance characteristics
- Electromagnetic fields in in transformers
- Eddy current and core losses
- Short-Circuit stresses and strength
- Monitoring and interaction.
- Transformer-System Interaction
- Transformer protection
- Surge phenomena
- Insulation design
- Cooling system

Disposition

Self studies, Seminars, software exercises, project work , presentations of project, written report

Course literature

S. V. Kulkarni: Transformer Engineering,
Handbooks

Examination

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.

Other requirements for final grade

- Oral presentation at a seminar at KTH or at a conference/symposium outside KTH
- Approved written report

The written report should constitute a condensed summary of essential parts of the course literature in a form that can be used for a brief introduction of students at the undergraduate level of the build-up, features, functions, net interaction, and protection of transformers.

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.