



EG2100 Power System Analysis

6.0 credits

Analys av 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

Course syllabus for EG2100 valid from Autumn 2014

Grading scale

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

Education cycle

Second cycle

Main field of study

Electrical Engineering

Specific prerequisites

Courses in electrical engineering 45 cr., courses in mathematics 30cr., also documented proficiency in English B, English 6 or equivalent.

Language of instruction

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

Intended learning outcomes

In this course students are prepared to become power system analysts, with the fundamental knowledge that they can use in the future for furthering their ability in designing and planning electrical power networks, and to characterize the most basic practices used in power system operations.

After completing the course, the students should be able to:

- Using first principles derive the basic concepts and methods used for power system analysis.
- To construct mathematical models for computing the steady state performance, and basic unbalanced performance of power systems.
- To derive, describe and compare different models of the most common equipment used in power network models.
- Using different methods, to compute, analyze, and reflect on the performance of a power system under steady state and unbalanced operation
- To describe basic characteristics of renewable and distributed energy sources, as well as monitoring, analysis and control technologies used in Smart Grids.

Course contents

The course is divided in five important topics: Modern Power Systems with an Introduction to Sustainable Energy Technologies and Smart Grids, Fundamental Principles for Power System Analysis AC circuits, Electrical Modeling of Generators, Transmission Apparatus and Networks, Methods for Analysis and Design of Power Networks in Steady State and Unbalanced Operation, and Steady State Stability Analysis using the Power-Flow Formulation.

Disposition

Lectures, exercise sessions.

Course literature

Hadi Saadat, "Power System Analysis"

Examination

- TEN1 - Examination, 2.0 credits, grading scale: A, B, C, D, E, FX, F
- ÖVN1 - Exercises, 4.0 credits, grading scale: P, 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.

The final grade is equal to the grade in the exam.

Other requirements for final grade

Each part of the examination must be passed.

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.