



# EG2110 Power System Stability and Control 7.5 credits

## Stabilitet och styrning 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

On 2020-10-13, the Head of School of EECS has decided to establish this official course syllabus to apply from the spring semester 2021 (registration number J-2020-1832).

## 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

- create mathematical models for describing power system dynamics,
- based on the derived mathematical models, apply different basic methods to
  - a) study and analyse the basic concept for the presented instabilities in power systems
  - b) improve the stability of the system based on basic control algorithms,
- numerically carry out the second intended learning outcomes by using Matlab, and present and discuss obtained numerical results.

## Course contents

This course covers the stability and control of the electric power system. The course starts with a presentation of large power outages in the world. Then, different instabilities in electric power system will be presented and discussed in the course. After that, we will be able to analyse the large power outages in the world presented in the first lecture. Furthermore, different control algorithms for improving power system stability will be presented.

## Specific prerequisites

EG2100 Power system analysis (or equivalent)

EL1000, EL1110 Automatic control, general course (or equivalent)

SF1519 Numerical methods and basic programming (or equivalent)

English B/English 6 (or equivalent)

## Examination

- PROJ - Project, 7.5 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.

## Transitional regulations

Students who have not completed the course with earlier examination part should carry out the re-examination.

## 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.