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 2019-10-15, the Head of School of EECS has decided to establish this official course syllabus to apply from the spring semester 2020 (registration number J-2019-1953).

Grading scale

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

Education cycle

Second cycle

Main field of study

Electrical Engineering

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 the equivalent

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

- create mathematical models for describing the dynamics of the power system
- 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,
- carry out the other intended learning outcomes by using Matlab numerically and present and discuss received 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.

Examination

- PROA - Project, 3.5 credits, grading scale: P, F
- TENA - Written examination, 4.0 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.

The final mark is equally to the grade on TENA.

Transitional regulations

Earlier, the only examination was PRO1 (7.5 credits, A-F). Students who have not completed the course with the earlier examination should follow the new examination rules. However the final mark and credit will be reported as PRO1 (7.5 credits, A-F).

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.