



# FEG3215 Microgrid Control 6.0

## credits

### Reglering av microgrids

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

### Establishment

Course syllabus for FEG3215 valid from Autumn 2022

### Grading scale

P, F

### Education cycle

Third cycle

### Specific prerequisites

Automatic control and power electronics

### Language of instruction

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

### Intended learning outcomes

This course aims to teach modelling, control, analysis and implementation of microgrids. After the course completion, the participants are expected to achieve the knowledge and skill to:

1. Describe the microgrid concept and how microgrids are deployed to support renewable integration and sustainable development of smart grid and society.
2. Model, control and simulate inverters and DC/DC converters
3. Control and simulate a microgrid with multiple converters
4. Develop state-space modeling of a microgrid
5. Analyze stability of a microgrid
6. Identify a specific research problem in microgrid area, and implement a selected novel method in the developed microgrid system.

## Course contents

Microgrid concept, inverter control, AC microgrid control, DC microgrid control, modelling and stability analysis, distributed control, energy management, cybersecurity

## Examination

- EXA1 - Examination, 6.0 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.

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

The grade is P/F.

Passing of the course requires the active participation of all lectures (absence can be only accepted with good reasons) and passing of the course project.

## 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.