



# FEG3222 Electricity Market Analysis, Graduate Course 10.0 credits

Elmarknadsanalys, doktorandkurs

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 FEG3222 valid from Spring 2019

## Grading scale

P, F

## Education cycle

Third cycle

## Language of instruction

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

## Intended learning outcomes

After the course, the student should be able to

- describe the principles of how an electricity market can be organised,

- describe treatment of flexible load
- describe methods to handle congestion in power markets,
- describe methods for analyzing prices in markets with limited competition,
- describe basic methods for financial risk management in power markets,
- describe methods to handle externalities, such as environmental problems, in electricity markets,
- perform calculations of pricing in small systems with one of the above characteristics.
- analyze pricing in larger power systems with combinations of several of the above named characteristics.
- apply methods for analyzing the trade off between low prices and reliability in larger power systems,
- formulate market simulation problems with mathematical expressions,
- analyze investment dynamics in electricity markets,
- reflect on possible ways to design electricity markets.

## Course contents

Electricity pricing, congestion management, hydro power, market power, environmental issues, regulation market, financial derivatives, transmission tariffs, role of the TSO, capacity investments, investment dynamics.

## Disposition

Lectures, home assignments, 5 h exam, project assignments.

## Specific prerequisites

The course is intended for Ph.D. students in electric power systems, but can also be interesting for students from other fields of electrical engineering.

## Course literature

L. Söder “Electricity Market Analysis”.

## Examination

- EXA1 - Examination, 10.0 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 project assignments are chosen by students in agreement with their supervisors and the examiner of the course.

## Other requirements for final grade

- Approved home assignments.
- Passed the exam.
- Approved project assignments.

## 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.