



# FEI3334 Advances in High Voltage Engineering, PhD Course

## 5.0 credits

Framsteg inom högspänningstekniken, 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 FEI3334 valid from Autumn 2011

### Grading scale

### Education cycle

Third cycle

### Specific prerequisites

MSc in electrical engineering, physical engineering or similar. EI2430 or FEI3232 are strongly recommended.

### 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:

- identify the improvements of a new measurement technique compared to existing techniques
- analyze the benefits with a new proposed material compared with existing solutions
- investigate the traceability of new findings to more well-known concepts
- compare the properties of new designs compared with existing
- control and repeat proposed simulation results
- analyze the developments in the area of ultra high voltages (UHV) and what obstacles that come in the way
- describe the latest findings in the high voltage area during the last 5-10 years

## Course contents

Novel materials for high voltage equipment, new and improved designs, new measurement equipment for diagnostics and monitoring of high voltage components, innovative devices for measurements of any thermal, electrical, mechanical, physical or chemical property of relevance for high voltage apparatuses. Non-power system applications of high voltages, pulsed power applications, electrostatic precipitators, etc.

## Disposition

Seminars/workshops (7\*3h = 21 h), 1 simulation project, 1 experimental project, 1 study tour to investigate an innovative product/process/service

## Course literature

A. Haddad and D. Warne, **Advances in High Voltage Engineering, 2004**; Articles, patents, company magazines, www, etc.

## Examination

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.

## Other requirements for final grade

One ten page long (font 12pt) essay on the latest findings in some selected area of the high voltage engineering field. Participated in 5 out of 7 workshops, each time giving an oral

presentation of something from a research article not older than 5 years. One repeated simulation of data from articles. One detailed report on how to repeat a certain experiment.

## **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.