FED3260 Fusion Plasma Diagnostics 8.0 credits

Fusionplasmadiagnostik

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 FED3260 valid from Spring 2019

Grading scale

P, F

Education cycle

Third cycle

Specific prerequisites

PhD students in the fields of electrical engineering, plasma physics, nuclear engineering, or similar.

Language of instruction

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

Intended learning outcomes

When completing the course, the student should be able to

- Formulate the underlying physics principles for common plasma diagnostic methods
- Perform simple analysis of measurement data
- Estimate measurement errors in plasma diagnostic data

Explain the technical features of some commonly used plasma diagnostic applications

Course contents

Magnetic measurements, measurements of plasma particle flux, measurements of plasma refractive index, electromagnetic emission by free electrons, electromagnetic radiation from bound electrons, scattering of electromagnetic radiation, measurements of ion processes. Basic plasma diagnostic applications such as: Magnetic diagnostics, interferometer, Thomson scattering, spectrometers, bolometers, SXR camera, and electric probes.

Examination

- EXA1 - Examination, 8.0 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.

Students are required to satisfactorily work out selected problems taken from the course book. Solution sheets are handed in and examined during the course. Students are expected to be able to discuss the completed problems and other course book material during oral examination

Other requirements for final grade

Written assignments and oral 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.