



# ED2245 Project in Fusion Physics 4.5 credits

Projekt inom fusionsfysik

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 ED2245 valid from Spring 2011

## Grading scale

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

## Education cycle

Second cycle

## Main field of study

Electrical Engineering, Engineering Physics, Physics

## Language of instruction

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

## Intended learning outcomes

The student will learn about practical experimental research work by carrying out a small research project. The projects are performed in a real research laboratory environment; the EXTRAP T2R fusion research facility at the Alfvén Laboratory in KTH. The student will engage in a project that also leads to a more in-depth understanding of some common fusion plasma diagnostics methods.

## Course contents

- Experimental techniques used for generating high temperature fusion plasmas.
- Plasma diagnostic methods that are commonly used such as magnetic measurements, probe measurements, interferometry, Thomson scattering, and spectroscopy.

## Specific prerequisites

120 hp in electrical engineering or technical physics and documented proficiency in English B or equivalent.

## Course literature

Fusion Physics – an introduction to the physics behind fusion energy, J. Scheffel and P. Brunzell, KTH 2009.

## Examination

- PRO1 - Project Task, 4.5 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.

Course credits will be given for successfully completed projects. The grade will be dependent on the observed amount of student activity, understanding and creativity, as demonstrated in the written project reports and the oral project presentations.

## Other requirements for final grade

After passing the course, the student should be able to

- understand and explain typical experimental methods in fusion physics,
- design an experiment based on a given research problem,
- perform common experimental research tasks such as experiment preparation, data collection and data analysis,
- summarize experimental research work in a short written report,

- present experimental work in a small informal talk.

## **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.