



EF2210 Plasma Physics, Supplementary Course 3.0 credits

Plasmafysik, påbyggnadskurs

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 EF2210 valid from Autumn 2007

Grading scale

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

Education cycle

Second cycle

Main field of study

Electrical Engineering, Engineering Physics

Specific prerequisites

Language of instruction

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

Intended learning outcomes

The course should provide a deeper knowledge of the electric and magnetic properties of plasma, as well as familiarity with advanced methods and principles. It should also serve as a foundation for higher level studies within plasma physics and related fields.

Course contents

Reflection and transmission of magnetohydrodynamic waves. Magnetohydrodynamic equilibrium and stability theory: variational analysis, force-free magnetic fields, and normal mode analysis.

Kinetic plasma theory: phase space, the distribution function, the Vlasov equation, Liouville's theorem, moment equations, the Boltzmann equation, the Fokker-Planck Equation, and stability theory.

Electrostatic structures: wall sheaths, double layers, and solitary waves.

Course literature

C-G Fälthammar, Plasmafysik, compendium (selected parts); M A Raadu, Plasma Physics Part II, compendium.

Examination

- TEN1 - Examination, 3.0 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.

Other requirements for final grade

One 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.