



SI1135 Classical Physics 6.0 credits

Klassisk fysik

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 SI1135 valid from Spring 2013

Grading scale

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

Education cycle

First cycle

Main field of study

Technology

Specific prerequisites

Introductory courses in mathematics and mechanics.

Language of instruction

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

Intended learning outcomes

The student will be able to:

- solve simple problems in thermodynamics and electromagnetic theory
- explain physical problems, conditions and restrictions for a non-technically trained audience
- make order of magnitude estimates of physical problems
- make computer calculations of thermodynamics and electromagnetic theory

Course contents

Thermodynamics: Carnot process, temperature and entropy. The laws of thermodynamics.

Thermodynamic potentials. The foundations of statistical mechanics and kinetic theory of gases.

Waves: Interference and Diffraction. Plane and spherical waves. Geometrical optics, The laser, coherence.

Electromagnetic Field Theory: Current, voltage, resistance, and circuit theory. Electric field strength, potential, Coulomb's law, dielectrics, capacitor, electrostatic energy. Magnetism, Magnetic dipoles, Electromagnetic induction. Maxwell's equations, electromagnetic waves.

Course literature

Mansfield & O'Sullivan, 'Understanding physics', Wiley, ch. 11-12 (p. 260-357), ch. 14-18 (p. 407-568).

Examination

- LAB1 - Computer Laboration, 2.0 credits, grading scale: P, F
- TENA - Written Examination, 4.0 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.

- LAB1 – Computer simulation, 2,0 hp, graded: PF
- TENA - Exam, 4 hp, graded: AF

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.