SK1112 Physics I 9.0 credits

Fysik I

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 SK1112 valid from Autumn 2008

Grading scale

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

Education cycle

First cycle

Main field of study

Physics,Technology

Specific prerequisites

As for the M- and T-programmes.

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 will be able to:

- solve technical problems, relevant for the program, which are related to electrical fields, magnetic fields, mechanical waves, and electromagnetic waves
- explain physical problems, conditions and restrictions to cooperation partners with non-technical educations
- estimate size and reasonableness in physical problems
- use and understand restrictions in physical measurements and instruments
- evaluate and present physical measurements in text and in diagrams
- systematically search for scientific information in literature and scientific papers.

“Physical” in the text above, means that part of physics that is included in the syllabus (se below).

Course contents

Electrostatics: Field and potential, Gauss’s theorem, metals and dielectrics, the capacitor, electrostatic energy.

Magnetism: Sources of the field, force and torque, magnetic materials and magnetic energy, technical applications, induction and inductance, mechanical waves.

Electromagnetic waves: Geometrical optics, polarization, interference and diffraction, coherence.

Course literature

Young and Freedman: University Physics, Pearson (the edition used will be announced on the course home page at least four weeks prior to the start of the course).

Instructions to lab experiments.

Examination

- INL1 - Assignments, 1.0 credits, grading scale: P, F
- LAB1 - Laboratory Work, 1.0 credits, grading scale: P, F
- LAB2 - Laboratory Work, 2.0 credits, grading scale: P, F
- TEN1 - Examination, 5.0 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

Written exam (TEN1; 5 ECTS, grading scale A-F).
Hand-in assignments (INL1; 1 ECTS, grading scale P/F).
Passed lab experiments (LAB1; 1 ECTS, grading scale P/F), (LAB2; 2 ECTS, grading scale P/F).

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.