ML0025 Physics for Technical Preparatory Year II 18.0 credits

Fysik för basår II

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 ML0025 valid from Spring 2016

Grading scale

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

Education cycle

Pre-university level

Specific prerequisites

Upper-secondary school before 1 July 2011 and adult education at upper-secondary level before 1 July 2012: Mathematics C, Physics A and Chemistry A or the equivalent. In each of these subjects a minimum grade of Passed or 3 is required

The upper-secondary school from 1 July 2011 and adult education at upper-secondary level from 1 July 2012: Mathematics 3, Physics 1b1 (or Physics 1a) and Chemistry 1. In each of these subjects a minimum grade of E is required.

Language of instruction

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

Intended learning outcomes

Overall goal

The course should promote a scientific view and give an understanding of basic physics concepts and relationships and give a good basis for further studies within physics and technical subjects that are included in the 3- and 5-year engineering programs.

On completion of the course, the student should be able to:

Carry out, describe, analyse and present experiments to examine physical phenomena which are discussed in the course.

Apply the working methods of physics, physics concepts and units, and basic physics models.

Identify, analyse and solve physics problems and present them in a structured way.

Course contents

Module 1: TEN1

Projectile motion, circular motion, electric fields, potential, the capacitor, magnetic fields, induction, alternating current.

Module 2: TEN2

Mechanical waves, electromagnetic waves, reflection, refraction and interference, oscillatory motion, photoelectric effect, atoms and quantum mechanics, the atomic nucleus and radioactivity, relativistic effects.

Laboratory sessions: LAB1

Includes modules 1 and 2.

Examination

- LAB1 - Laboratory Work, 2.0 credits, grading scale: P, F
- TEN1 - Examination, 8.0 credits, grading scale: P, F
- TEN2 - 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.

Other requirements for final grade

TEN1 - Written examination, 8 credits, Grade P/F

TEN2 - Written examination, 8 credits, Grade P/F

LAB1 - Laboratory exercises, 2 credits, Grade P/F

Furthermore, approved oral and/or written presentations of selected assignments can be required, Grade P/F

For final grade, it is required that all examination parts are approved. The final grade is based on the total number of points from both written examinations, TEN1 and TEN2.

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.