

**SYLLABUS**

# **Physics for secondary school teachers 15 credits F0025T**

**Fysik för grundskolans senare år**

**Course syllabus admitted: Autumn 2007 Sp 1 - Spring 2009 Sp 4**

**DECISION**

**The syllabus was established by the Department of Applied Physics and Mechanical Engineering 2007-02-28, and remains valid from autumn 2007.**

# Physics for secondary school teachers 15 credits F0025T

## Fysik för grundskolans senare år

### First cycle, F0025T

Education level	Grade scale	Subject	Subject group (SCB)
First cycle	U G VG		Physics

## Entry requirements

In order to meet the general entry requirements for first cycle studies you must have successfully completed upper secondary education and documented skills in English language and Mathematics course A, B, C and Physics course A.

## Selection

The selection is based on final school grades or Swedish Scholastic Aptitude Test.

## Course Aim

To give basic knowledge and experimental practice in Physics. The course provides the necessary background for studies in physics at the university.

## Contents

Waves: harmonic oscillation, mechanical waves, superposition principle, periodic waves, standing waves, reflection, refraction, diffraction, interference, diffraction from a slit, multiple slits, the diffraction grating.

Forces and motion: momentum, impulse, elastic collisions, projectile motion, motion in a circle: angular velocity, centripetal acceleration, vibrations.

Electromagnetism: electric field, electric potential, the oscilloscope, the capacitor, magnetic fields, sources of magnetic fields, magnetic forces, induction, Lenz law, alternating current, alternating-current circuits.

Atomic and nuclear physics: photons, de Broglie wavelength, the uncertainty principle, atomic models, energy levels, emission spectra, absorption spectra, X-rays, nuclides, nuclear radioactivity, fission, fusion, particle physics.

## Realization

The teaching is given in form of lectures and compulsory laboratory work.

## Examination

Possibility to exam the part on atomic and nuclear physics, with active participation on lectures and take-home assignments.

Written final exam on the other parts. There can be alternative examination methods.

## Remarks

The course is not in credit at the study of the engineering programmes

## Overlap

The course F0025T is equal to MTF406

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## Literature. Valid from Autumn 2007 Sp 1

Heureka! Fysik B Gymnasieskolan, ISBN 91-27-56722-2

Hamrin, Norqvist: Fysik i vardagen, ISBN 91-44-03945-X

Särtryck: Växelström

Formelsamling: Tabell- och formelsamling för Fysik A och Fysik B och laborationshandledningar, Institutionen för tillämpad fysik, maskin- och materialteknik, LTU

## Course offered by

Department of Applied Physics and Mechanical Engineering

## Items/credits

Number	Type	Credits	Grade
0001	Laboratory work electricity and waves	1.5	U G#
0002	Written exam	6	U G VG
0003	Laboratory work atomic and nuclearphysics	0.7	U G#
0004	Other tasks Physics/Written exam, part 2	3	U G VG
0005	Demonstrations	3.8	U G VG

## Syllabus established

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