SK1120 Waves 6.0 credits

Vågrörelselära

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

The course plan applies from and including VT 2024 according to the school head's decision: S-2023-0370. Decision date: 2023-03-14

Grading scale

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

Education cycle

First cycle

Main field of study

Physics,Technology

Specific prerequisites

Active participation in SF1625 Univariable analysis and SF1624 Algebra and geometry or equivalent courses.

Language of instruction

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

Intended learning outcomes

After passing the course, the student must be able to:

- solve technical problems relevant to their program related to mechanical and electromagnetic waves, and assess the plausibility of the solution.
- use physical measurement methods and instruments and report results and evaluate limitations.

By "physical" above is meant the part of physics that is included in the course content below.

Course contents

Basic wave concept.

Mechanical waves: intensity, reflection, standing waves.

Acoustic quantities and measurement methods. Ultrasound.

Electromagnetic waves: Generation, intensity, polarization, interference, diffraction, laser with applications.

Geometrical optics: Optical instruments, projectors.

Photometry: Luminous flux, brightness, illumination, luminance.

Examination

- INL1 - Hand in Assignments, 1.0 credits, grading scale: P, F
- LAB1 - Laboratory Work, 2.0 credits, grading scale: P, F
- 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

Written exam (TEN1; 3 credits, grading scale A-F).
Hand-in assignments (INL1; 1 credits, grading scale P/F).
Passed lab experiments (LAB1; 2 credits, 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.