SK2550 X-ray Physics and Applications 6.0 credits

Röntgenfysik och tillämpningar

This is a translation of the Swedish, legally binding, course syllabus.

Establishment

Grading scale

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

Education cycle

Second cycle

Main field of study

Physics, Engineering Physics

Specific prerequisites

Recommended prerequisites: The course is designed for final year students (F4), Master and PhD-students. Knowledge of the physics of electromagnetic radiation corresponding to SK1120 (Waves, 6 hp) and in basic mathematics (vector analysis, integrals, differential equations) is a prerequisite. Moreover, knowledge in optics corresponding to SK2300 (Optical Physics, 6 hp) is of advantage.

Language of instruction

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

Intended learning outcomes

After completing the course the student should be able to:

- describe X-ray scattering properties of different materials
- explain different X-ray sources, X-ray optics and X-ray detectors
- conduct a basic X-ray experiment
- evaluate an analytical method using X-rays

Course contents

Part 1: X-ray basics

X-ray interaction with matter, X-ray sources, X-ray optics, X-ray detectors

Part 2: Application examples and special topics

To be chosen by the course participants (see website)

Examination

- INLA - Home Assignment, 3.0 credits, grading scale: P, F
- REDA - 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.

If the course is discontinued, students may request to be examined during the following two academic years.

Other requirements for final grade

The course is examined through home assignments and lab report (INLA, 3 credits, P/F) and an oral presentation and examination (REDA - 3 credits, A-F). The oral examination determines the final grade.

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.