



SH2307 Physics at Accelerators

6.0 credits

Acceleratorbaserad fysik

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 SH2307 valid from Autumn 2007

Grading scale

P, F

Education cycle

Second cycle

Main field of study

Physics

Specific prerequisites

Recommended prerequisites: It is of value to have basic knowledge in modern physics, i.e. courses like Subatomic Physics (SH2101), Experimental Particle Physics (SH2201), Nuclear Physics (SH2301), Quantum Physics etc.

Language of instruction

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

Intended learning outcomes

The course is a continuation of SH2306 with emphasis on modern physics studied at accelerators. The aim is to give insight in this kind of physics but also to show how recent development of accelerator techniques makes new physics experiments possible.

Course contents

A couple of accelerator laboratories are presented and visited. Elements of modern accelerator techniques are also presented. In addition lectures on a few experiments of atomic, molecular, nuclear and particle physics character are given by researchers active in these fields of physics. Application of nuclear methods to solid state physics will be briefly covered.

Course literature

Techniques for Nuclear and Particle Physics Experiments. (W.R. Leo, Springer Verlag).

Atomic and Quantum Physics. (H. Haken and H.C. Wolf, Springer Verlag).

Introductory Nuclear Physics. (Kenneth S. Krane, John Wiley & Sons).

Accelerator teknik (S Rosander, Inst. f. acc.teknik, KTH, in Swedish).

Examination

- LAB1 - Laboratory Work and Study Visit, 3.0 credits, grading scale: P, F
- SEM1 - Seminar, 1.5 credits, grading scale: P, F
- TEN1 - Examination, 1.5 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

Active participation in lectures and one small oral or written exam (TEN1; 1,5 university credits). Passed labs and participation in study visits to the Manne Siegbahn and The Svedberg laboratories (LAB1; 3 university credits). Each participant should give one 20 - 30 minute lesson about an accelerator based experiment (SEM1; 1,5 university credits).

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.