

FYSN11, Physics Experiments in Research and Society, 7.5 credits

Fysikexperiment i forskning och samhälle, 7,5 högskolepoäng
Second Cycle / Avancerad nivå

Details of approval

The syllabus was approved by Study programmes board, Faculty of Science on 2007-03-01 to be valid from 2007-07-01, autumn semester 2007.

General Information

The course is an elective course for second-cycle studies for a scientific candidate or Master's degree (120 credits).

Language of instruction: English

Main field of studies

Physics

Depth of study relative to the degree requirements

A1N, Second cycle, has only first-cycle course/s as entry requirements

Learning outcomes

The aims of the course are that the student should acquire the following knowledge and skills:

Knowledge and understanding

- describe the principles of scientific experiments (or a Gedanken experiment) and the relation between experiments and measurements.
- explain interaction between ionizing and non-ionizing radiation and matter
- explain the underlying principles behind atomic and subatomic measuring techniques and detectors.

Be able to carry out:

- sketch an experimental scenario for a physical research issue
- sketch an experimental scenario; based on adequate atomic or subatomic processes; for a technical problem

Ability to communicate:

- communicate orally and in writing at an advanced scientific level

Course content

- definition of experiment and relations between experiments and measurements
- methods in physical experiments from the microcosmos to macrocosmos
- general physical principles behind different physical experimental methods
- choices of radiation to create and measure the results of the reaction
- simulation of the response of the detector; geometry. Calibration and analysis of data
- Specialisation in a specific type of physics experiment at a research team

Course design

The teaching consists of lectures, computer-based laboratory session and project work. Laboratory session and project work and thereby integrated teaching is compulsory. The project work is completed with written report and an oral presentation in seminars. Laboratory session and written assignments be presented in writing and be defended at oral overview.

Assessment

Examination takes place based on orally and in writing presented written assignments, laboratory reports and project presentation.

Subcourses that are part of this course can be found in an appendix at the end of this document.

Grades

Marking scale: Fail, Pass, Pass with distinction.

A Pass grade requires approved laboratory reports, passed written assignments passed written and oral project presentation and active participation in compulsory parts.

The final grade is determined by the results in the different parts of the examination.

Entry requirements

For admission to the course, English B and FYS31 Physics 3 are required: Modern physics 30 credits or FAF270 or the equivalent

Further information

This course may not be included together with FYS400 in a higher education qualification, if it has been included as module in FYS400.

Subcourses in FYSN11, Physics Experiments in Research and Society

Applies from H07

0701 Physics Experiment in Research and Society, 7,5 hp
Grading scale: Fail, Pass, Pass with distinction