

FYST18, Physics: Applied Subatomic Physics, 7.5 credits

Fysik: Tillämpad subatomär fysik, 7,5 högskolepoäng

Second Cycle / Avancerad nivå

Details of approval

The syllabus was approved by Study programmes board, Faculty of Science on 2007-06-14 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 and Swedish

If needed, the course is given in English in its entirety.

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 aim of the course is that students should have acquired the following knowledge and skills on completion of the course:

Knowledge and understanding

On completion of the course, the student should

- describe the underlying principles of different ion beam analytical methods
- explain the bases in reactor physics
- describe the principles of neutron scattering physics
- account for some important applications of the nuclear physics

Application and assessment

On completion of the course, the student should

- be able to choose appropriate analytical method for given problem
- had developed his ability to experimental and physical understanding of different applications of the nuclear physics

Ability to communication

On completion of the course, the student should be able to

- write an essay that critically and commenting summarise published results within the subject area of the course
- present the own work orally and discuss other students' presentations

Learning skills and information competence

On completion of the course, the student should be able to

- alone be able to seek scientific information that is relevant to an essay within the field of study of the course.
- through peer review assess essays written on the same level as the course

The aim of the course

The aim of the course is to show on the possibilities that are to utilise knowledge in nuclear physics and nuclear measuring technique as tools within other disciplines. The course intends to give an overview over possible applications of the nuclear physics and strong emphasis is placed partly at reactor physics, partly at current research in neutron scattering physics and ion beam analysis.

Course content

The course focuses on four principal part of applications of the subatomic physics:

- Ion beam analysis and AMS lectures, laboratory sessions
- Neutron physics, neutron scattering physics with applications and ESS- lectures, projects
- Fission reactor theory tutorials (discussion group), study visits.
- Medical and technical applications of the nuclear physics essay, seminar.

Course design

The teaching is given as lectures, tutorials, laboratory sessions, projects and shorter seminars. Participation in laboratory sessions, projects and essay with seminar are compulsory.

Assessment

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.

To pass the course, passed laboratory sessions, passed project, passed essay and active participation in lectures, tutorials and seminars are required. Or, an examination can (g/u) be organised for it as not active participation in lectures and tutorials. The final grade are combined of the grade on laboratory part, project part and essay

Entry requirements

For admission to the course, general entry requirements, English B and knowledge equivalent to FYSA31 are required Physics 3: Modern physics 30 credits or FAF270(LTH).

Further information

Applied subatomic physics is given as a cooperation between Scientific and Technical faculties of a teacher team.

Subcourses in FYST18, Physics: Applied Subatomic Physics

Applies from V08

0701 Applied Subatomic Physics, 7,5 hp
Grading scale: Fail, Pass, Pass with distinction