



Course syllabus

Faculty of Technology

Department of Physics and Electrical Engineering

4FY550 Datorfysik II, 7,5 högskolepoäng

4FY550 Computational physics II, 7.5 credits

Main field of study

Physics

Subject Group

Physics

Level of classification

Second Level

Progression

A1N

Date of Ratification

Approved by Faculty of Technology 2015-05-22

The course syllabus is valid from spring semester 2016

Prerequisites

2FY812 Computational Physics I, 7.5 credits or equivalent.

Objectives

After completing the course the student should:

- have a deeper understanding of simulation and methods for computer simulations of physical and technological applications
- independently analyse, evaluate and in writing present achieved results

On of the following:

- ability and understanding of programming simulations of advanced physical systems, or
- ability and understanding of computer aided algebra and it's use in describing advanced physical systems.

Content

Course content:

- Finite element method

- Computer aided algebra
- Application of numerical linear algebra to physics

Type of Instruction

Teaching consist of lectures, project supervision, and project work. The project work is mandatory.

Examination

The course is assessed with the grades A, B, C, D, E, Fx or F.

The grade A constitutes the highest grade on the scale and the remaining grades follow in descending order where the grade E is the lowest grade on the scale that will result in a pass. The grade F means that the student's performance is assessed as fail (i.e. received the grade F).

Assessment is based on the student's written report and oral defense of it.

Course Evaluation

During the course or in close connection to the course, a course evaluation is to be carried out. The result and analysis of the course evaluation are to be communicated to the students who have taken the course and to the students who are to participate in the course the next time it is offered. The course evaluation is carried out anonymously. The compiled report will be filed at the Faculty.

Credit Overlap

The course cannot be included in a degree along with the following course/courses of which the content fully, or partly, corresponds to the content of this course: 4FY850 Computational physics II, 7.5 credits

Other

Grade criteria for the A–F scale are communicated to the student through a special document. The student is to be informed about the grade criteria for the course by the start of the course at the latest.

Required Reading and Additional Study Material

Required reading

Harvey Gould, Jan Tobochnik, and Wolfgang Christian: An Introduction to Computer Simulation Methods: Applications to Physical Systems