SI1142 Mathematical Methods in Physics, Additional Course 3.0 credits

Fysikens matematiska metoder, tilläggskurs

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

Establishment

Course syllabus for SI1142 valid from Autumn 2007

Grading scale

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

Education cycle

First cycle

Main field of study

Physics, Technology

Specific prerequisites

Recommended prerequisites: To master the contents of the mathematics courses that preceed each part of this course in the course plan for the technical physics program. This course should be taken in parallel or after SI1140.

Language of instruction

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

Intended learning outcomes

This is a supplementary course to SI1140 and is on somewhat more advanced and powerful mathematical tools which are important in theoretical physics.

Course contents

Solutions of differential equations by Green's functions. Variational methods and connection to differential equations and spectal problems. Applications: Hamilton's principle, Lagrange- and Hamilton formalims in mechanics, Rayleigh-Ritz' method. Relation to numerical methods.

Course literature

G. Sparr and A. Sparr, Kontinuerliga system, Studentlitteratur, Lund (2000) together with the "Övningsbok".

Additional material will be made available on the course homepage.

Examination

- INL1 - Assignment, 1.0 credits, grading scale: P, F
- TEN1 - Examination, 2.0 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

Witten examination (TEN; 2 university credits) and one homework problem requiring numerical computations (LAB; 1 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.