FEI3304 Integral Equations in Electromagnetics 6.0 credits

Integralekvationsmetoder inom elektromagnetism

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

Establishment

Course syllabus for FEI3304 valid from Spring 2019

Grading scale

P, F

Education cycle

Third cycle

Specific prerequisites

Language of instruction

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

Intended learning outcomes

After completion of the course the student shall be able to

- explain briefly the Fredholm theory for integral equations
- derive electromagnetic representation formulas, from generalized Green formulas,

- derive line, surface, and volume integral equations
- discretize integral equations into matrix equations
- explain some methods for improved and accelerated convergence

Course contents

Numerical methods for analyzing scattering of electromagnetic waves from objects with complicated shape

Examination

- EXA1 - Examination, 6.0 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.

If the course is discontinued, students may request to be examined during the following two academic years.

Four homeassignments:

1. Electrostatic or magnetostatic problem
2. Thinwire antenna
3. Scattering from metallic or homogeneous object
4. Scattering from heterogeneous object

Other requirements for final grade

Satisfactory performance in all homeassignments. Oral presentation of one assignment.

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.