# FDD3270 Computational Methods for Electromagnetics  7.5 credits

## Beräkningsmetoder för Elektromagnetiska problem

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

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

## Establishment

Course syllabus for FDD3270 valid from Autumn 2021

## 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 successful completion of course requirements, the students will be able to

- solve numerically electromagnetics problems to study wave propagation, transmission lines and antennas
- develop and implement numerical methods and software for finite difference and finite element differential equation models as well as integral equation models
- describe and list the advantages and limitations of different numerical techniques
- use commercial software to identify its limitations.

## Course contents

- Maxwell's equations and basic concepts in electromagnetics.
- Numerical methods based on discretisation with finite differences and finite elements as well as the method of moments.
- Theory of convergence, stability and error analysis.
- Development of software for electromagnetic problems.
- Commercial software for electromagnetic problems.

## Examination

- EXA1 - Written examination, 7.5 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.

In order to pass the course, the student must pass three assignments, one final course adavanced project (report and presentation) and the presentation of an article on the field.

## 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.