



El2402 Electromagnetic compatibility 7.5 credits

Elektromagnetisk förenlighet

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

Establishment

Grading scale

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

Education cycle

Second cycle

Main field of study

Electrical Engineering

Specific prerequisites

El1200 Introductory course in classical electromagnetic field theory or equivalent including documented proficiency in english corresponding to eng B”

Language of instruction

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

Intended learning outcomes

The course provides basic understanding of how electromagnetic disturbances appear in and influence electromagnetic components and systems. Moreover, the participant acquires knowledge about methods and strategies that reduce the influence of disturbances.

After completion of the course, the participant shall be able to

- construct simple models that describe non-ideal properties for electrical components
- understand and apply the concept of zone-division in electrical systems
- analyse cross-talk in multiconductor systems
- identify low frequency (electric and magnetic) coupling mechanisms
- identify high frequency (electromagnetic) coupling mechanisms
- choose adequate analysis methods
- design effective shielding devices and filters
- describe typical misconceptions in designs

Course contents

EMC regulations and measurements. Frequency behavior of passive components. Conducted emission. Radiation from wires and apertures. Cross-talk between transmission lines. Shielding of electric and magnetic fields. Grounding. Laboratory assignments.

Course literature

Paul, **Electromagnetic Compatibility**, 2nd ed.
Lecture notes.

Examination

- PRO1 - Project, 4.0 credits, grading scale: A, B, C, D, E, FX, F
- LAB1 - Laboratory Work, 3.5 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.

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

Other requirements for final grade

Approved laboratory assignments and project works.

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.