



El2401 Advanced Microwave Engineering 7.5 credits

Avancerad mikrovågsteknik

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

Establishment

The official course syllabus is valid from the spring semester 2025 in accordance with head of school decision: J-2023-2208. Date of decision: 2023-10-12

Grading scale

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

Education cycle

Second cycle

Main field of study

Electrical Engineering

Specific prerequisites

Knowledge in electromagnetic field theory at the second-cycle level, 7.5 higher education credits, equivalent completed course EI2405.

Active participation in a course offering where the final examination is not yet reported in LADOK is considered equivalent to completion of the course. Being registered for a course counts as active participation. The term 'final examination' encompasses both the regular examination and the first re-examination.

Language of instruction

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

Intended learning outcomes

After passing the course, the student should be able to

- describe how common microwave components such as waveguides, transmission lines, filters and antennas function and their purpose
- describe the function and the purpose of advanced microwave components
- use simulation tools to design microwave components
- use appropriate measuring equipment to characterise microwave components
- analyse the results of measurements
- design a component or a system of components based on a specification.

Course contents

This course covers different aspects of advanced microwave engineering. The student is introduced to common microwave components (filters, directional couplers (OMT), antennas, etc.) and uses commercial simulation tools to design microwave components.

The tools that are used are relevant and are used daily in industry and academia for research and development. We deal with

- introduction to common and advanced microwave components
- use of commercial simulation tools for production of microwave components
- measurements on, and evaluation of, microwave components.

Examination

- INL1 - Hand-in assignments, 3.0 credits, grading scale: P, F
- PRO1 - Project assignment, 3.0 credits, grading scale: P, F
- TEN1 - Written exam, 1.5 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.

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.