



# SK2814 Microwave Engineering

## 7.5 credits

### Mikrovågstechnik

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

### Establishment

The course syllabus is valid from Spring 2022 according to the school principal's decision: S-2022-0529 Decision date: 2022-02-24

### Grading scale

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

### Education cycle

Second cycle

### Main field of study

Engineering Physics

### Specific prerequisites

English B / English 6

Electromagnetics corresponding to Bachelor of Science in Electrical Engineering

### Language of instruction

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

# Intended learning outcomes

After the course the participants should be able to:

- Apply electromagnetic theory to calculations regarding waveguides and transmission lines
- Describe, analyse and design simple microwave circuits and devices e g matching circuits, couplers, antennas and amplifiers
- Describe and coarsely design common systems such as radar and microwave transmission links
- Describe common devices such as microwave vacuum tubes, high-speed transistors and ferrite devices
- Handle microwave equipment and make measurements.

## Course contents

Wave guides, Scattering parameters, Impedance transformation and matching, Antennas, Resonators, Passive and active microwave devices, Microwave communication systems, Radar, Microwave measurements.

## Examination

- TEN1 - Exam, 6.0 credits, grading scale: A, B, C, D, E, FX, F
- LAB1 - Laboratory Course, 1.5 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

Participation in 3 laboratories, 10 hours, 1.5 ECTS credits

Written closed-book examination, 5 hours, 6 ECTS 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.