IT2651 Microwave Engineering 7.5 credits

Mikrovågsteknik

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

Establishment

Course syllabus for IT2651 valid from Autumn 2008

Grading scale

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

Education cycle

Second cycle

Main field of study

Electrical Engineering

Specific prerequisites

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

Course literature

Robert E. Collin, "Foundations for Microwave Engineering". McGraw-Hill, ISBN 0-07-112569-8, 2nd edition, 1992 (out of print, used copies common), or Wiley-IEEE Press 2000, ISBN: 0-7803-6031-1andUrban Westergren, "Problems Manual and Laboratory Instructions in Microwave Engineering (also in Swedish: "Exempelsamling och laborationsanvisningar i mikrovågsteknik"), 2004, can be downloaded from the course web page (contact the lecturer about password), printed on request at the course start each year **Undervisningsspråk:** Engelska

Examination

- TEN1 - Examination, 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 creditsWritten 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.