



## Course syllabus

Faculty of Technology

Department of Physics and Electrical Engineering

2ED393 Radioteknik, 7,5 högskolepoäng

Radio engineering, 7.5 credits

### **Main field of study**

Electrical Engineering

### **Subject Group**

Electrical Engineering

### **Level of classification**

First Level

### **Progression**

G2F

### **Date of Ratification**

Approved by Faculty of Technology 2014-10-03

The course syllabus is valid from autumn semester 2015

### **Prerequisites**

Electrical engineering 120 credits incl. Analogue electronics 7.5 credits (1ED012), Analogue signals and systems 7.5 credits (1ED062) or the equivalent.

## Objectives

The course emphasises the high frequency aspects of telecom technology. The student is expected to understand the role of the spatial dimension in the interference between waves on transmission lines and to obtain a deeper knowledge of the building blocks in a radio system.

## Content

The course comprises the following topics:

- Transmission lines, the Smith chart
- Impedance transformation
- Class A and C amplifiers
- HF amplifiers
- LC and crystal oscillators
- Mixers
- Digital frequency synthesis
- Phase locked loop, PLL

## Type of Instruction

Lectures and laboratory sessions.

## Examination

The course is assessed with the grades A, B, C, D, E, Fx or F.

The grade A constitutes the highest grade on the scale and the remaining grades follow in descending order where the grade E is the lowest grade on the scale that will result in a pass. The grade F means that the student's performance is assessed as fail (i.e. received the grade F).

Laboratory sessions and written assignments. Written exam for the higher grades.

### Course Evaluation

A course evaluation will be carried out at the end of the course in accordance with the guidelines of the University. The result of the course evaluation will be filed at the department.

### Credit Overlap

This course cannot be part of a degree in combination with another course in which the content fully or partly correspond to the content of this course: 2ED092 Radio engineering, 7.5 credits

### Other

Grade criteria for the A–F scale are communicated to the student through a special document. The student is to be informed about the grade criteria for the course by the start of the course at the latest.

### Required Reading and Additional Study Material

Pozar D. M., *Microwave and RF Design of Wireless Systems*, Wiley, 2001. Pages 200 (350).