



FIK3511 Practical Radio Communication 4.0 credits

Praktisk radiokommunikation

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

Establishment

Course syllabus for FIK3511 valid from Spring 2022

Grading scale

P, F

Education cycle

Third cycle

Specific prerequisites

Basic courses in Electrical Circuits, Electronics

Language of instruction

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

Intended learning outcomes

After completing the course the participants should, through practical exercises, be able to explain the fundamental principles of radio propagation and the components of a radio system.

Further, the participants should be able to design and perform measurements on simple amplifiers and antennas and be able to practically assemble a radio system consisting of transmitters, receivers and antennas.

The participants should be able to follow the rules and regulations regarding the resource efficient use of the radio spectrum and traffic procedures.*

After completing the course, the participants should be able to conduct experimental work in radio electronics and radio systems under their own responsibility

*** Considering that our radio spectrum is a finite resource, this is a learning outcome that contributes to sustainable development**

Course contents

Radio communication fundamentals

1. Radio electronics – amplifier, transmitter and receiver designs
2. Antennas and feeders
3. Radio propagation, link budget

Radio Spectrum Regulation

1. International conventions, ITU, WARC, RR
2. National Regulation, PTS

Traffic procedures

Practical exercises

1. RF-power amplifier design and performance measurements
2. Antennas and feeders – tools and measurement techniques for design and impedance matching
3. Propagation on HF – prediction tools and measurements
4. Traffic procedures

Examination

- EXA1 - Examination, 4.0 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.

The homework assignments are performed individually and are submitted for grading.

The lab exercises are performed in group, but an individual report must be submitted where the participant analyses the outcome.

An individually written report should be submitted on sustainability aspects on the use of the radio spectrum.

Other requirements for final grade

For a passing grade it is required that all homework is passed, and that both the lab report and the report on use of radio spectrum is passed.

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.