EP2950 Wireless Networks 7.5 credits

Trådlösa nätverk

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

Establishment

Course syllabus for EP2950 valid from Autumn 2017

Grading scale

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

Education cycle

Second cycle

Main field of study

Electrical Engineering

Specific prerequisites

For single course students: 120 credits and documented proficiency in English B or equivalent.

Language of instruction

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

Intended learning outcomes

After passing this course, participants should be able to:

- reason about the challenges of wireless network design
- apply mathematical tools to design and optimize wireless network protocols
- explain and motivate the design of standard solutions for mobile, local area and sensor networks
- discuss ongoing research and development in the area of wireless networking

Course contents

The course addresses principles, modelling, system solutions, and performance analysis for data communication in wireless networks and covers:

- the fundamental issues of wireless networking;
- cellular networks: the cellular concept, frequency, channel and power allocation, handover, the LTE architecture;
- WLANs: random access, hidden and exposed terminals, rate selection and error control, quality of service, architecture and standards;
- sensor networks: energy modeling, duty cycling, energy harvesting, multihop; communication, standards.

Disposition

Lectures, home assignments, lab and project.

Course literature

Selected parts of books on wireless networks.

Examination

- PRO1 - Project, 3.0 credits, grading scale: P, F
- TEN1 - Examination, 4.5 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.

Other requirements for final grade

Written exam (TEN1, 4,5p), grades A/B/C/D/E/Fx/F.
Lab assignment (LAB1 3p), grades Pass/Fail.

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.