EP2500 Networked Systems Security 7.5 credits

Säkra nätverkssystem

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

Establishment

The official course syllabus is valid from the autumn semester 2025 in accordance with the decision from the director of first and second cycle education: HS-2025-0641. Decision date: 2025-04-02

Grading scale

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

Education cycle

Second cycle

Main field of study

Information and Communication Technology, Computer Science and Engineering

Specific prerequisites

Knowledge in algorithms and data structures, 6 credits, equivalent to completed course DD1338/DD1320-DD1328/DD2325/ID1020/ID1021

or

knowledge in computer engineering, 6 credits, equivalent to completed course IS1500/IS1200/EP1200.

Language of instruction

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

Intended learning outcomes

After passing the course, the student should be able to

- identify, explain and analyse vulnerabilities, threats and attacks against a number of modern network systems
- state properties and requirements of security solutions for network systems clearly
- analyse and design security protocols and mechanisms that protect the network operation against attacks
- explain and analyse general security mechanisms qualitatively and quantitatively
- identify and analyse best practice for security systems that currently are generally used in network systems

in order to

- become prepared for future advanced studies in the subject
- be able to handle open, real technical problems.

Course contents

Basically, the course will bring up security including integrity for a spectrum of network systems that includes:

- Internet and TCP/IP networks,
- Mobile voice and data networks,
- Wireless local and personal networks,
- Wireless sensor networks,
- Mobile ad hoc and hybrid networks, such as vehicle communication systems

The emphasis in the course lies on basic concepts and technologies about joint security requirements in different systems and about how the functions in each system decide the latest security solutions.

Examination

- KON1 - Assignment, 2.5 credits, grading scale: P, F
- INL1 - Assignment, 2.5 credits, grading scale: P, F
- TEN1 - Examination, 2.5 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.

The exam is written.

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.