DD2395 Computer Security 6.0 credits

Datasäkerhet

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

Establishment

The official course syllabus is valid from autumn semester 2025 according to the decision of Director of First and Second Cycle Education: HS-2025-0532.Date of decision: 2025-03-14

Grading scale

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

Education cycle

Second cycle

Main field of study

Computer Science and Engineering

Specific prerequisites

Knowledge and skills in programming covering 5 credits, equivalent to completed course DD1337/DD1310-DD1319/DD1321/DD1331/DD100N/ID1018.

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

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 threats against confidentiality, integrity and availability in digital systems
- explain basic terminology and concepts in computer security and use them
- find and use documentation of security related problems and tools
- analyse simple program code and system descriptions to identify vulnerabilities and predict their corresponding threats
- select countermeasures against identified threats and argue for their suitability
- compare countermeasures and evaluate their side effects,
- present and explain their reasoning to others,

in order to

- be able to develop software and computer systems with security in mind
- enable those interested to move on and specialise in the field of cybersecurity.

Course contents

- introduction to computer security
- introduction to cryptography
- authentication, access control, security models
- intrusion detection, firewalls
- malware: virus/worms/troyans
- web attacks
- buffer overflow attacks
- human factors, security audits, and social manipulation
- selected current security related problems and technologies

Examination

- TEN1 - Examination, 3.0 credits, grading scale: A, B, C, D, E, FX, F
- LAB1 - Laboratory Work, 3.0 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 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.