FEP3200 Networked Systems Security 8.0 credits

Säkra nätverkssystem

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

If the course is discontinued, students may request to be examined during the following two academic years

Establishment

Course syllabus for FEP3200 valid from Spring 2012

Grading scale

Education cycle

Third cycle

Specific prerequisites

Language of instruction

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

Intended learning outcomes

At the end of the course, students shall be able to:

(i) Identify, comprehend, and analyze vulnerabilities, threats, and attacks against a variety of modern networked systems.

(ii) State clearly security properties and requirements for networked systems security solutions.

(iii) Analyze and design security protocols and mechanisms that safeguard the network operation against attacks.

(iv) Comprehend and analyzequalitatively and quantitativelythe overhead of security mechanisms.

(v) Identify and analyze best practices for security schemes deployed widely in networked systems.

Course contents

The course will work on security, including privacy, for a spectrum of networked systems, covering: (i) Internet and TCP/IP networks, (ii) Cellular data and voice networks, (iii) wireless local and personal area networks, (iv) Internet of Things and embedded systems, (v) Wireless Sensor Networks, (vi) Mobile ad hoc and hybrid networks, such as vehicular communication systems. While the first three types of networked systems have been the predominant ones, and shall get significant attention, the course shall strive to keep a balance and present upcoming technologies. The emphasis, throughout the course, shall be on basic concepts and technologies, on common security requirements across various systems, and on how features of each system determine the state-of-the-art of security solutions.

NSS sets the ground for its companion courses, “Advanced Networked Systems Security” and “Building Networked Systems Security.” The latter ones will offer the opportunity to deal with security and privacy problems in a deeper and entirely hands-on manner.

Disposition

The course is structured around weekly lectures, a set of assignments that are mandatory and graded, and two in-class written exams, one mid-term and one at the end of the quarter. The assignments are distributed throughout the course period. Students are supported via extensive office hours, held by the instructor and the teaching assistants throughout the course. All material and instruction shall be in English.

Course literature

List of textbooks recommended (see Kurs-PM), choice of purchase left at the students. Short list of additional articles/technical reports.

Examination

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.

Other requirements for final grade

Assignments and exams will be graded and they are all mandatory for successfully completing the course and they are all part of the calculation of the final grade. Each component (exam and assignment) will be graded independently. The exams shall be 25% and 30% of the total grade respectively, and the assignments shall weigh the remaining 45%. Final grades: they are in the letter scale, A-F for MSc students; pass/fail for PhD students.

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.