EP2520 Building Networked Systems Security 7.5 credits

Bygga 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 EP2520 valid from Autumn 2012

Grading scale

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

Education cycle

Second cycle

Main field of study

Computer Science and Engineering,Information and Communication Technology

Specific prerequisites

Eligible students should be already prepared by a basic course on network security, systems security, or Internet security. Preparation on most of, or all if possible, among data networks, operating systems, wireless networks, Internet-working, is presumed. If equivalent knowledge was acquired through a different path, students should contact the instructor. Following the companion "Networked Systems Security" course is not a strict requirement, but it is strongly encouraged for continuity and best results.

Language of instruction

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

Intended learning outcomes

This project-/implementation-/lab- based course intends to enhance and extend the understanding of modern networked systems security. It builds on the preparation of students through the "Networked Systems Security (NSS)" course. It seeks to hone the ability to deal with open-ended, real-world engineering problems, as well as prepare for independent work on related topics.

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

(i)   Implement networked systems security solutions, addressing specific security requirements and system constraints

(ii)   Analyze and evaluate security mechanisms they implemented, in terms of the level of the security they provide and the overhead they incur.

This course is planned primarily for students in their fourth or fifth year, i.e., the beginning of their second year in their MSc programs. The course is open to PhD students too. It naturally complements the two other closely related courses, the NSS and the "Advanced Networked System Security (ANSS)" course.

Course contents

The course content will be detailed at the start of the course each year. Basically, 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, and (vi) Mobile ad hoc and hybrid networks, such as vehicular communication systems. The focus is expected to vary across years.

The course exposes students to security and system implementation issues and it prepares them for further work in the industry, towards an MSc thesis, and possibly later Licentiate/PhD work, on topics related to network and system security.

Disposition

The course is structured around project work undertaken by the students, with the extensive help of the teaching staff. Weekly interactive meetings, including a number lectures at the beginning of the course, and extensive consultation will be made available to students. All material and instruction shall be in English.

Examination

• PRO1 - Project, 7.5 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.

Project outcomes will be graded, with all project parts mandatory for successfully completing the course, resulting in a single final grade.

Other requirements for final grade

For MSc students the final grades are in the letter scale, A-F. 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.