



DD2460 Software Safety and Security 7.5 credits

Programvarusäkerhet

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

Establishment

Course syllabus for DD2460 valid from Spring 2019

Grading scale

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

Education cycle

Second cycle

Main field of study

Computer Science and Engineering

Specific prerequisites

SF1901/SF1924 Probability theory and statistics, DD1337 Programming, DD1338 Algorithms and Data Structures, SF1630/SF1688 Discrete Mathematics, DD1352/DD2350 Algorithms, Data Structures and Complexity, DD2395 Computer Security, or corresponding courses.

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:

- explain safety and security aspects of systems,
- construct models of systems,
- specify and analyze safety and security properties,
- apply analysis tools to software systems,
- evaluate and compare different approaches to verifying and validating software systems.

aiming at

- as citizen and expert be able to discuss software safety and security,
- in professional life and/or research projects be able to formally express safety- and security-related properties,
- be able to use and adapt various tools and technologies to verify such properties.

Course contents

- Part I. Introduction to safety and security.
- Part II. Temporal logics, modeling, model checking, formal specification. Tool: NuSMV.
- Part III. Information flow security, type system. Tool.
- Part IV. Concurrency, network programming. Tool: Java Pathfinder.
- Part V. Memory safety, fuzzing. Tools: valgrind, radamsa.

Course literature

Literature (book chapters, research papers, tutorials, web sites) will be made available in the course room on Canvas.

Examination

- TEN2 - Examination, 1.0 credits, grading scale: A, B, C, D, E, FX, F
- LAB2 - Laboratory work, 5.0 credits, grading scale: A, B, C, D, E, FX, F
- ÖVN2 - Group presentation and report, 1.5 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.

In TEN2, the grading scale used is A, B, C, D, E, Fx, F.

In ÖVN2, the grading scale used is A, C, E, Fx, F.

In LAB2, the grading scale used is A, B, C, D, E, Fx, F.

Other requirements for final grade

Detailed grading criteria will be published in the course memo.

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.