



DD2460 Software Safety and Security 7.5 credits

Programvarusäkerhet

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

Establishment

The official course syllabus is valid from the autumn semester 2022 in accordance with Head of School decision: J-2021-1950. Decision date: 14/10/2021

Grading scale

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

Education cycle

Second cycle

Main field of study

Computer Science and Engineering

Specific prerequisites

Completed course in computer security equivalent to DD2395.

Active participation in a course offering where the final examination is not yet reported in LADOK is considered equivalent to completion of the course.

Registering for a course is counted as active participation.

The term 'final examination' encompasses both the regular examination and the first re-examination.

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 for systems,
- construct models of systems,
- specify and analyse safety and security properties,
- apply analytical tools on software systems,
- evaluate and compare different approaches to verification and validation of software systems,

in order to

- 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. System modeling with Event-B. Tool: Rodin.
- Part IV. Concurrency, network programming. Tool: Java Pathfinder.
- Part V. Memory safety, fuzzing Tools: memory checker, fuzzer.

Examination

- 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
- EXA2 - Home exam, 1.0 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.

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.

Additional regulations

This course contains group projects and labs. Course registration after the official registration period is not possible, since we need to create the groups in the beginning of the course.