



FDD3463 Software Safety and Security 7.5 credits

Programvarusäkerhet

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 FDD3463 valid from Spring 2022

Grading scale

P, F

Education cycle

Third cycle

Specific prerequisites

Completed course in computer security equivalent to DD2395.

For the Ph.D. course, the candidate needs at least a design of a research idea to be able to formalize it in a model.

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 (JPF).

Part V. Memory safety, fuzzing Tools: memory checker, fuzzer.

Examination

- EXA1 - Examination, 7.5 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.

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.