# DD2460 Software Safety and Security 7.5 credits

**Programvarusäkerhet**

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

## Establishment

On 2019-10-15, the Head of School of EECS has decided to establish this official course syllabus to apply from the spring semester 2020 (registration number J-2019-2099).

## Grading scale

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

## Education cycle

Second cycle

## Main field of study

Computer Science and Engineering

## Specific prerequisites

For the students of the free standing course:

SF1901 Mathematical Statistics, DD1337 Programming, DD1338 Algorithms and Data Structures, SF1630 Discrete mathematics, DD1352 Algorithms, Data Structures and Complexity and DD2395 Data Security, or equivalent 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 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. Information flow security, type system. Tool.
- Part IV. Concurrency, network programming. Tool: Java Pathfinder.
- Part V. Memory safety, fuzzing. Tools: valgrind, radamsa.

## 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 and LAB2, the whole grading scale is used, but in ÖVN2, the grades B and D are not used

## 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.