



# FDD3459 Software Reliability

## 9.0 credits

### Mjukvaru pålitlighet

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 FDD3459 valid from Spring 2019

### Grading scale

P, F

### Education cycle

Third cycle

### Specific prerequisites

### Language of instruction

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

### Intended learning outcomes

After the course the student shall be able to:

identify the basic activities needed for software testing, including requirements capture, test planning, test case generation, test case execution, fault diagnosis and fault correction, construct requirements models for different kinds of systems, including procedural, embedded and object-oriented systems, construct a test suite from a simple test requirement model, construct a state transition model for model-based testing, automatically generate test cases using a test-case generation (TCG) tool, assess the quality of a test suite according to a variety of coverage models.

## Course contents

The course will include the following topics:

software testing concepts according to the V-model different schools of testing white-box testing graph coverage models logic coverage models data flow coverage models black-box testing random testing pairwise testing boundary testing model-based testing statechart models specification-based testing graphical requirements modeling, including use-case modeling logical requirements modeling, including preconditions, postconditions and class invariants, JML, OCL temporal logic requirements modeling, including safety and liveness properties automated test case generation using model checkers advanced topics such as mutation testing. The theoretical subjects are supported by laboratories that are intended to deepen student understanding of important concepts.

## Examination

- EXA1 - Examination, 9.0 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.