



## Course syllabus

Faculty of Technology  
Department of Computer Science

2DV100 Programvaruteknisk översiktskurs, 7,5 högskolepoäng  
Foundations of Software Technology, 7.5 credits

### Main field of study

Computer Science

### Subject Group

Informatics/Computer and Systems Sciences

### Level of classification

First Level

### Progression

G2F

### Date of Ratification

Approved by Faculty of Technology 2014-04-01

The course syllabus is valid from autumn semester 2014

### Prerequisites

120 credits of which at least 60 credits must be in Computer Science or the equivalent.  
Basic programming skills corresponding to the course 1DV006, Problem Solving and Programming, 7.5 credits.

## Objectives

Upon completion of the course, the student should:

- be able to implement programs in Java
- have knowledge of different types of software testing and have practical experience of unit testing (JUnit)
- be able to define and apply formal languages concepts like finite automata, regular expressions, context-free grammars, and parsing
- be able to define and apply algorithmic theory concepts like time complexity, simple search and sorting algorithms, greedy algorithms, and dynamic programming
- be able to implement data structures like lists, graphs, trees, sets, and hash tables

## Content

The course covers the following topics:

- object-oriented programming in Java
- software testing in general, unit testing (JUnit) in particular
- data structures (sequential structures, hashing, trees, graphs, sets)
- formal languages (finite automata, regular expressions, context-free grammars, recursive descent)

- algorithm theory (time-complexity, greedy algorithms, dynamic programming)

## Type of Instruction

Lectures and practical assignments.

## Examination

The course is assessed with the grades Fail (U), Pass (G) or Pass with Distinction (VG).

On request, students may have their credits translated to ECTS-marks. Such a request must be sent to the examiner before the grading process starts. Assessment of the student's performance is made through written exams and/or oral tests and presentation of compulsory practical assignments. The assessment method will be decided at the start of the course. Students who do not pass the regular examination are given the opportunity to do a resit shortly after the regular examination.

## Course Evaluation

A course evaluation will be carried out and compiled after the course is completed. The compilation will be presented to the current board as well as to the students and filed by the coordinating department.

## Required Reading and Additional Study Material

### **Handout**

Handout and other relevant literature will be selected together with the supervisor and the examiner.