



Course syllabus

Faculty Board of Science and Engineering
School of Computer Science, Physics and Mathematics

4DV006 Kompilatorkonstruktion I, 7,5 högskolepoäng
Compiler Construction I, 7.5 credits

Main field of study

Computer Science

Subject Group

Informatics/Computer and Systems Sciences

Level of classification

Second Level

Progression

A1N

Date of Ratification

Approved by Organisational Committee 2009-12-01

The course syllabus is valid from autumn semester 2010

Prerequisites

Algorithms and Advanced Data Structures, 7.5 hec, Language and Logic, 7.5 hec, and Object-oriented Software Engineering, 15 hec or the equivalent.

Expected learning outcomes

Upon completion of the course, the student should be able to:

- describe the different phases in the compilation process
- design and develop a finite automata based lexical analysis
- describe a few different parsing techniques
- design and develop an LL(1) parser
- describe, design and develop a semantic analysis
- describe, design and develop a stack-machine based virtual machine

Content

Theory related to formal languages and compiler construction. The course also has a large practical part where we implement a small compiler for a simple language.

The course covers the following topics:

- different compilation phases
- object-oriented compiler design
- lexical analysis based on finite automata and regular languages
- context-free grammars and languages
- different parsing techniques (LL- and LR-parsing)

- attributed grammars
- semantic analysis
- code generation
- stack-machine based execution

Additional parts of the course content is determined at the start of the course.

Type of Instruction

Lectures, seminars and self studies.

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.

Written examination and/or written and practical assignments which are presented orally and/or in written form. 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 examination shortly after the regular examination.

Course Evaluation

A written course evaluation will be carried out at the end of the course in accordance with the guidelines of the University. The course evaluation will be filed at the department.

Other

Upon request, a Swedish University degree will be issued upon successful completion of the full demands for that degree.

Students who receive a passing grade in the course may download a course certificate through the Student Portal. Otherwise they may request a course certificate from the school secretary.

Required Reading and Additional Study Material

Required reading

Relevant literature will be selected together with the supervisor and the examiner.