# DD2488 Compiler Construction 9.0 credits

## Kompilatorkonstruktion

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

## Establishment

Course syllabus for DD2488 valid from Autumn 2009

## Grading scale

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

## Education cycle

Second cycle

## Main field of study

Computer Science and Engineering

## Specific prerequisites

Single course students: 90 university credits including 45 university credits in Mathematics or Information Technology. English B, or equivalent.

## Language of instruction

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

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# Intended learning outcomes

The student should be able to

- explain the steps involved in the compilation process, from source code to target code,
- understand a given grammar or regular expression and determine which strings belong to the corresponding formal language,
- write regular expressions and grammars for various formal languages, such as programming languages,
- choose an appropriate formal notation to describe a given formal language,
- explain LL-analysis and LR-analysis,
- use scanner and parser generators,
- explain the aspects of the architecture of a computer or a virtual machine relevant to a compiler,
- write programs that perform various steps of the compilation process.

# Course contents

Describing programming languages and other formal languages using regular expressions and grammars.

Methods for lexical and syntax analysis and their relationships to models of computation such as finite automata and pushdown automata. Syntax analysis using LL and LR parsing. Tools such as scanner and parser generators.

Semantic analysis, translation into intermediate code, instruction selection and register allocation.

# Course literature

In a similar course: A.W. Appel, Modern compiler implementation in Java, second edition, was used.

# Examination

- TEN1 - Examination, 4.0 credits, grading scale: A, B, C, D, E, FX, F
- LAB1 - Laboratory Work, 5.0 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.

If the course is discontinued, students may request to be examined during the following two academic years.

In this course all the regulations of the code of honor at the School of Computer science and Communication apply, see: http://www.kth.se/csc/student/hederskodex/1.17237?l=en_UK.

# 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.