Linnæus University

Course syllabus

Faculty Board of Science and Engineering

School of Computer Science, Physics and Mathematics

1DV017 Språk och logik, 7,5 högskolepoäng
1DV017 Language and Logic, 7.5 credits

Main field of study
Computer Science

Subject Group
Informatics/Computer and Systems Sciences

Level of classification
First Level

Progression
G1F

Date of Ratification
Approved by Organisational Committee 2009-09-08
The course syllabus is valid from spring semester 2010

Prerequisites
Courses Problem Solving and Programming (1DV006) and Programming and Data Structures (1DV007) or equivalent.

Objectives

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

- account for basic theory about finite state automata, regular expressions and regular languages
- translate regular expressions to finite state automata and vice versa
- convert nondeterministic finite state automata to deterministic finite state automata,
- implement finite state automata in executable programs
- account for basic theory about context-free grammars and context-free languages
- explain the basics of simple parsing algorithms for context-free grammars such as recursive descent and shift-reduce
- give an informal account of the syntax and semantics of first-order logic
- formalize simple statements in first-order logic
- give an overview of the major areas of language technology
- explain at a basic level the use of finite state automata, grammars and logic in language technology

Content
The course contains:

- finite state automata and regular expressions
- context-free grammars and languages
- first-order logic
- language technology

The concluding part on language technology contains a general introduction to the area as well as a practical part with applications of formal language theory and logic

Type of Instruction
Teaching consists of lectures, seminars and practicals. Practicals are carried out in groups.

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

A translation of the grades to the ECTS scale may be obtained upon request. The request for a translation should be made befor the grade for the course is awarded.
Written examination and/or assignments which are presented orally and/or in written form. The assessment method is 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
After completed training students will receive a degree certificate from the Examination Department upon request.
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 secretary of the School of Mathematics and Systems Engineering.

Required Reading and Additional Study Material
Required reading
Aho, V & Ullman, J D, *Foundations of Computer Science*, Computer Science Press, 1995. Chapter 10-12 och 14. Pages 213 (786).