Linnæus University

Jnr: 2015/1630-3.1.2

Course syllabus

Faculty of Technology
Department of Computer Science

1DV517 Språk och logik, 7,5 högskolepoäng
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 Faculty of Technology 2015-05-22
The course syllabus is valid from spring semester 2016

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 A, B, C, D, E, Fx or F.
The grade A constitutes the highest grade on the scale and the remaining grades follow in descending order where the grade E is the lowest grade on the scale that will result in a pass. The grade F means that the student's performance is assessed as fail (i.e. received the grade F).

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
During the course or in close connection to the course, a course evaluation is to be carried out. The result and analysis of the course evaluation are to be communicated to the students who have taken the course and to the students who are to participate in the course the next time it is offered. The course evaluation is carried out anonymously. The compiled report will be filed at the Faculty.

Credit Overlap
This course cannot be part of a degree in combination with another course in which the content fully or partly correspond to the content of this course: 1DV017 Language and Logic, 7.5 credits

Other
Grade criteria for the A–F scale are communicated to the student through a special document. The student is to be informed about the grade criteria for the course by the start of the course at the latest.

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).