DD1327 Fundamentals of Computer Science 6.0 credits

Grundläggande datalogi

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

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

Establishment

Course syllabus for DD1327 valid from Spring 2018

Grading scale

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

Education cycle

First cycle

Main field of study

Technology

Specific prerequisites

DD1331 or the equivalent (for example DD1310).

Language of instruction

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

Intended learning outcomes

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

- systematically test programs to discover errors,
- use abstraction as a tool to simplify the programming,
- choose appropriate algorithm to a given problem,
- describe different algorithms for searching, sorting and encryption as well as their properties,
- model problems using graphs and implement algorithms for searching in graphs,
- implement and use basic data structures,
- design and analyse simple algorithms with data structures,

in order to:

- become a good problem solver using programming,
- be able to use computational methods in application projects, and
- acquire sufficient prior knowledge to be able to take advanced courses in computer science.

Course contents

Algorithms and data structures: A systematic overview of the concepts abstract data types, stacks, queues, lists, trees, searching, sorting and recursion based on the knowledge the students acquired in the course Fundamentals of programming. Hashing, priority queues, search trees, problem trees, text searching, simple syntax analysis, encryption and automata. Algorithm analysis.

Programming: Software development methodology, programme quality, abstraction, modularisation, testing, system calls, standard libraries.

Course literature

Will be announced on the course web no later than 10 weeks before the start of the course.

Examination

- IND1 - Individual home assignments, 2.0 credits, grading scale: A, B, C, D, E, FX, F
- LAB1 - Laboratory assignments, 4.0 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.

In this course, the code of honour at the School of Computer Science and Communication is applied, see: http://www.kth.se/en/csc/utbildning/hederskodex

Under special circumstances, other examination formats may be used.

Other requirements for final grade

Passed laboratory assignments and individual home assignment.

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.