DD1321 Applied Programming and Computer Science 9.0 credits

Tillämpad programmering och 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 DD1321 valid from Autumn 2018

Grading scale

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

Education cycle

First cycle

Main field of study

Technology

Specific prerequisites

For single course students: completed upper secondary education including documented proficiency in Swedish corresponding to Swedish B, English corresponding to English A. Furthermore: 7,5 hp in mathematics and 6 hp in computer science or programming technics.

Language of instruction

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

Intended learning outcomes

During this course we will teach you to:

• write structured programs either in Python or in C,

• systematically debug programs,

• write automated test programs,

• use abstraction as a tool to simplify programming,

• write prototypes using Python,

• know about international programming standards,

• component programming,

• select an appropriate algorithm for certain problems,

• compare algorithms considering memory use or complexity,

• describe the qualities and characteristics of different algorithm such as seek and sort,

• propose and implement recursive algorithm,

• model real problems such as seek problems and implement algorithm for depth/width/best-first seek,

• describe elementary compression algorithm,

• implement and use stacks and queues,

• implement and use binary trees of different kinds,

• implement and use hash tables and hash functions

• use priority queues,

• identify problems where the above mentioned data structures are useable,

so that you will be able to:

• feel confident to solve programming problems,

• use computer science methods in real world projects,

• test computer systems,

• continue study more advanced courses in computer science (internationally or nationally).

Course contents

Python programming. Program quality. Testing and debugging. Exceptions. System calls. Library functions. Abstract datatypes, stack, queue, tree. Search, sort, recursion. Hash, binary search trees, tree traversals, deep/breadth-first algorithm. C-programming, type-directed programming, compiling, linking, building, make-files.

Course literature

Ingen obligatorisk kurslitteratur.

Examination

- LABD - Programming assignments, 3.0 credits, grading scale: A, B, C, D, E, FX, F
- LABP - Programming assignments, 3.0 credits, grading scale: P, F
- TEN1 - Examination, 3.0 credits, grading scale: A, B, C, D, E, FX, 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 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.

Under special circumstances, other examination formats may be used.

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.