DD1331 Fundamentals of Programming 5.0 credits

Grundläggande programmering

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

Establishment

Grading scale

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

Education cycle

First cycle

Main field of study

Technology

Specific prerequisites

Language of instruction

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

Intended learning outcomes

After the course, the student should be able to

- Describe the parts of and the terminology for a computer system briefly such as CPU, memory, OS and interface
- Push, pull, update and document changes to code with a version control system.
- Describe the source code for a computer program with correct terminology
- Describe and apply basic data types and type conversions
- Describe, apply and debug flowcontroll; and logical and arithmetical expressions
- Debug short programs written by others
- Debug longer programs written by xerself
- use and evaluate good programming pracices
- implement, debug and describe recursive algorithms with the correct terminology
- combine built in functions in the programming language with self written functions to solve programming problems
- choose the right datastructure for a problem so the solution scales
- motivate the time complexity for creating, searching, sorting (not hash tables), insertion and deletion from hash table, linked list and vector

in order to

- perform calculations and solve programming problems
- use Kth:s computer systems
- be prepared for the next course in computer science

Course contents

- Basic computer science concepts

- The version control system Git

- Basic programming in Python

- Abstract data types

- Classes

- Recursion, hierarchical decomposition

- Classical data structures: lists, stacks, queues, hash tables, trees

- Classical algorithms for search and sorting

- Introduction to algorithm analysis

Several smaller programming assignments and a larger individual programming assignment with

high requirements of structuring and specification of included modules.

Course literature

Sedgewick, Wayne och Dondero: Introduction to programming in Python

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Examination

- TEN2 - Examination, 1.0 credits, grading scale: P, F
- LAB2 - Laboratory Assignment, 2.0 credits, grading scale: A, B, C, D, E, FX, F
- LAB1 - Laboratory Assignment, 2.0 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.

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.