DA1010 Computer Science for SU 15.0 credits

Datalogi för SU

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

For admission to the course is required knowledge equivalent to Mathematics I, GN 30 credits (MA2001) or Mathematics for natural sciences I, GN 15 credits (MM2002), at Stockholm University, that are taken either in parallel with, or before, Computer Science I, GN or the equivalent.

Language of instruction

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

Intended learning outcomes

Having passed the course the student is expected to:

â€¢ be able to account for basic computational concepts such as data types and type systems, the algorithm concept, recursion, tail recursion, iteration

â€¢ be able to use at least a programming language

â€¢ be able to account for properties in different types of programming languages and programming paradigms briefly

â€¢ be able to solve simple to fairly difficult programming assignments based on given problem descriptions

â€¢ be able to solve also more complex programming assignments in collaboration with other students

â€¢ both orally and in writing present and discuss own completed work.

Course contents

A. The course is an introduction to the tools that are necessary for continued studies in the subject and treats: Introduction to computer science. Use of terminals and personal computers. Text editing. Introduction of computer scientific concepts: recursion, tail recursion, iteration, list handling etc. Programming methodology in modern algorithmic programming languages. The type concept. Syntax and semantics. Type systems and type equivalence. Binding mechanisms, side effects and environments. Data and program abstraction. Abstract data types and encapsulation. Modularisation. Overview of programming languages, their principles and fields of use. Special algorithms for searching, sorting, file management etc.

Course literature

Abelsson, Sussman and Sussman: Structure and Interpretation of Computer Programs

Dive into Python from novice to pro

Examination

- LABO - Practical Exercises, 7.5 credits, grading scale: P, F
- THEO - Theory, 7.5 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.

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

The course consists of the following components:

â€¢ Theory (Theory), 7.5 credits. Include the theoretical parts of the course as well as smaller programming assignments and investigating assignments that are presented at special presentation sessions.

â€¢ Laboratory sessions (Practical Exercises), 7.5 credits. Larger programming assignments that cover the, up to each individual laboratory session, reviewed concepts and technologies.

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.