DD2458 Problem Solving and Programming under Pressure 9.0 credits

Problemlösning och programmering under press

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

Establishment

Course syllabus for DD2458 valid from Autumn 2009

Grading scale

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

Education cycle

Second cycle

Main field of study

Computer Science and Engineering

Specific prerequisites

Language of instruction

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

Intended learning outcomes

The goals of the course are that the student should be able to

- analyze the efficiency of different approaches to solving a problem to determine which approaches will be reasonably efficient in a given situation,
- compare different problems in terms of their difficulty,
- use algorithm design techniques such as greedy algorithms, dynamic programming, divide and conquer, and combinatorial search to construct algorithms to solve given problems,
- correctly implement a given specification of an algorithm or data structure,
- communicate and cooperate with other students during problem solving in groups,
- concisely and lucidly describe algorithms, data structures, and problems in writing.

The purpose is that the students should be able to use programming as an effective tool for problem solving, and should get opportunity to apply theoretical knowledge from other courses to solve practical problems.

The goals are attained by solving number of homework assignments, implementing a small library of algorithms and data structures, solving problems in groups during problem solving sessions, and by preparing and typesetting lecture notes.

Course contents

Algorithms: computational geometry, graph algorithms, number theoretic algorithms, string matching. Design and analysis of algorithms: dynamic programming, amortized analysis, estimating the complexity of an algorithm. Programming skills mainly in C and Java.

Course literature

Meddelas senast 4 veckor före kursstart på kursens hemsida.

Examination

- ÖVN1 - Exercises, 4.5 credits, grading scale: A, B, C, D, E, FX, F
- LAB1 - Programming Contests, 4.5 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.

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.

Other requirements for final grade

Examination can only be done during the course.

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.