DD2440 Advanced Algorithms 6.0 credits

Avancerade algoritmer

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

Establishment

Course syllabus for DD2440 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, Information Technology, Information and Communication Technology

Specific prerequisites

Single course students: 90 university credits including 45 university credits in Mathematics or Information Technology. English B, or equivalent.

Language of instruction

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

Intended learning outcomes

After finishing the course the participants should be able to

- analyze, select, use, design, and implement efficient algorithms and data structures for essential computational problems

in order to

- construct and evaluate computer programs that use computer resources efficiently.

Course contents

The course is intended for students with an interest in the areas computer science and discrete mathematics. It will describe and analyze a number of algorithms for discrete computational problems. Some of the following concepts and computational problems will be discussed.

Primality of integers.

Factorization of integers.

Fast multiplication of large integers.

Network flow.

Matching in graphs.

Searching and sorting in different computational models.

The travelling salesman problem.

Amertized time complexity.

Quantum computation.

Fast Fourier Transform.

Course literature

To be announced at least 4 weeks before course start at course web page. Previous year material produced at the department was used.

Examination

- ÖVN1 - Exercise, 6.0 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.

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

Written exercises (OVN1; 6 university credits).

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.