FDD3008 Distributed Algorithms 6.0 credits

Distribuerade algoritmer

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

Establishment

Course syllabus for FDD3008 valid from Autumn 2009

Grading scale

G

Education cycle

Third cycle

Specific prerequisites

Language of instruction

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

Intended learning outcomes

Upon completion of the course the student should be able to:

- understand and account for models, limitations, and fundamental concepts in the area of message passing and shared memory concurrency, and apply this understanding to example systems and algorithms,

- adapt, and design algorithms for execution in parallel and distributed settings,
- analyze the algorithms for correctness, reliability, security, and performance.

Course contents

Parallel and distributed algorithms are fundamental to many aspects of modern computing and communications technology, including processor architectures (multicore, manycore), programming languages and operating systems, databases, and networks. The course covers the principles of parallel and distributed algorithms, emphasizing the fundamental issues underlying the design and analysis of distributed systems, including synchronization, communication, coordination, agreement, fault-tolerance, locality, symmetry breaking, self-organization.

Course literature

Main textbook is Maurice Herlihy, Nir Shavit: The art of multiprocessor programming, Morgan Kaufmann 2008. Other material will be made available on the course web.

Examination

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.

Other requirements for final grade

The course is examined through handins, participation in marking, an oral paper presentation, and a written report.

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.