ID2210 Distributed Computing, Peer-to-Peer and GRIDS 7.5 credits

Distribuerad programmering, peer-to-peer och GRIDS

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

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

Establishment

Course syllabus for ID2210 valid from Spring 2019

Grading scale

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

Education cycle

Second cycle

Main field of study

Computer Science and Engineering,Information and Communication Technology

Specific prerequisites

120 university credits (hp) in engineering or natural sciences and documented proficiency in English corresponding to English A

Language of instruction

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

Intended learning outcomes

This course shall lead to deepened knowledge in distributed systems and algorithms specially for fully decentralized systems such as peer-to-peer systems and gossip-based systems. The topic of Distributed Systems is now garnering increasing importance, especially with the advancement in technology of the Internet and WWW.

The aim of this module is to provide students with basic concepts and principles of distributed systems, basic distributed algorithms, and orientation about distributed middleware for peer-to-peer and GRID systems. The module is taught in seminar style, and several case studies are included.

The student should be able to:

- explain the common concepts of peer-to-peer, DHT and gossip based algorithms
- implement in a simulator environment some of peer-to-peer algorithms
- write a summary and present the basic ideas of a recent research paper in the field and give a critical view of the contribultion and the cons and pros of the paper.

Course contents

Fundamental results in distributed algorithms; gossip and epidemic overlays. Study of peer-to-peer systems, algorithms, and applications.Study of DHTs (Distributed Hash Tables), and content distribution. Introduction to GRID systems.

Course literature

Distributed K-ary system: algorithms for DHT overlays.
http://www.sics.se/~ali/thesis
Forskningsartikler i peer-to-peer systems and GRID systems.Forskingsartiklerna finns på kursens hemsida

Examination

- ANN1 - Assignment, 3.0 credits, grading scale: P, F
- TEN1 - Examination, 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.

Other requirements for final grade

Midterm exam (10 point) has a weight of 10% given as bonus point. Final presentation and report (TEN1; 4.5 hp) (70 points) has a weight of 70% of the final result.

The practical part of the course (LAB1; 3 hp) consists of three compulsory parts and gives 30 points (of weight 30%).

For the final grade the following is valid:

A: 90 points or higher
B: 75-89 points
C: 65-74 points
D: 55- 64 points
E: 45-54 points
Fx: 40-44 points
F: less than 40 points

For approved grade (E) the following should be satisfied
- The student has completed the compulsory part of LAB1.
- The student in presentation form can explain the contribution of the assigned research paper.

For higher grade the student should pass the midterm and to critize and compare the contribution of assigned paper.

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.