ID1206 Operating Systems 7.5 credits

Operativsystem

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 ID1206 valid from Autumn 2019

Grading scale

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

Education cycle

First cycle

Main field of study

Technology

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 should be able to:

- explain how multi-threaded processes are structured
- explain how an operating system can handle several processes at the same time
- implement parts of the functions of an operating system.

For higher grades, the student should also be able to

- explain how virtualisation of memory is implemented
- explain how memory management is implemented
- explain properties for different scheduling algorithms
- explain properties for different types of process communication
- explain implementation of more advanced file system.

Course contents

The course provides knowledge of the principles of and how one can implement

- abstractions of hardware
- virtualisation of resources and timetabling of assignments; mainly as regards execution, memory and persistent storage.

The structure of an operating system is studied to increase the knowledge of these concepts and also give skills in efficient use of the abstraction level that an operating system offers.

Disposition

The course consists of 12-16 lectures to which practical smaller assignments be connected. The practical assignments are intended to give an increased understanding of the concepts that are presented as well as to give the practical skills that is required to satisfy the aim of the course.

The course also has a larger assignment that should be carried out during the course. The assignment should give increased understanding of how an operating system is built in practice and how it functions.

Specific prerequisites

Completed courses corresponding to:

- ID1018 Programming I
- IS1200 Computer Hardware Engineering
- ID1020 Algorithms and Data Structures
- ID1019 Programming II.

Course literature

The course will be based on:

Remzi H. Arpaci-Dusseau and Andrea C. Arpaci-Dusseau, "Operating System: Three Easy Pieces", Arpaci-Dusseau Books.

Reference literature:

Andrew S. Tanenbaum, "Modern Operating Systems", Prentice-Hall

Examination

- SEMA - Seminar, 1.5 credits, grading scale: P, F
- TENA - Examination, 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.

In agreement with KTH´s coordinator for disabilities, it is the examiner who decides to adapt an examination for students in possess of a valid medical certificate.. The examiner may permit other examination forms at the re-examination of few students

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.