



HI1025 Operating Systems 7.0 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 HI1025 valid from Spring 2011

Grading scale

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

Education cycle

First cycle

Main field of study

Technology

Specific prerequisites

Eligibility for the programme TIDAA. Knowledge of introductory programming corresponding to **HI1024 Grundläggande programmering** or similar and introductory digital circuits corresponding to **HE1026 Digitalteknik** and microprocessor assembly programming corresponding to **HE1028 Mikrodatorteknik** or similar.

Language of instruction

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

Intended learning outcomes

The course offers theoretical and practical foundations of modern operating systems.

- After completion the student is able to discuss the development and design of operating systems,
- has concrete skills in systems programming and is aware of limitations and possibilities regarding:
 - Memory allocation,
 - Processes and IPC,
 - File management and I/O,
- is able to manage resources in a computer system correctly,
- knows the basics of TCP/IP and has a certain understanding of the Client/Server-concept
- is able to make informed choices of best-suited method of communication in IPC-applications,
- is able to discuss security risks concerning program errors and user management,
- is able to install and configure a multi-user system and has knowledge about operating system administration.

To receive a higher mark the student shall exhibit a deeper understanding by combining knowledge from the various areas that are part of operating systems theory and be able to discuss problems with an underlying holistic grasp of the theory and the practical applications

Course contents

Mostly a Linux/UNIX platform will be used since it gives unrestricted access to operating system-related manipulation primitives which promotes a successful learning experience. The following will then be studied:

- The development of operating systems in a historical perspective
- The concept of **process** and management of processes
- System calls and interrupt management
- Memory management
- Resource management and dead lock
- File systems
- Input / Output
- Interprocess communication (IPC)

- Systems administration, installation and configuration
- Script programming
- Case studies of concrete operating systems

Course literature

The course literature is posted on the course's web page at least four weeks before the course starts. A previous course, similar to this that was given previous academic year used the following literature: **De Blanche A.**, Operativsystem – teori och praktiskt handhavande, Studentlitteratur 2008.

Examination

- LAB1 - Laboratory Work, 4.0 credits, grading scale: P, F
- TEN1 - Examination, 3.0 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.

Other requirements for final grade

TEN1: Written exam, 3.0 credits, graded A, B, C, D, E, Fx or F.

LAB1: Practical work, 4.0 credits, graded P / F.

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.