



# DD2486 Systems Programming and Operating Systems 7.5 credits

Systemprogrammering och operativsystem

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

## Establishment

Course syllabus for DD2486 valid from Autumn 2008

## Grading scale

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

## Education cycle

Second cycle

## Main field of study

## Specific prerequisites

## Language of instruction

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

# Intended learning outcomes

After completed course, you shall, for a Unix environment, be able to

- describe how compiler and linker puts together a program
- create and use a Makefile to compile and link programs with several source files
- describe how computer and operating system executes and switches programs
- write programs that handle several processes and/or threads that communicate with signals
- describe how computer and operating system handles the memory
- describe how connection with external units and networks is done
- write programs that use sockets for network communication
- describe how concurrent programs work and implement them with processes, threads or as a state machine
- combine your knowledge to write programs that use the operating systems services.

## Course contents

Compiler and linker. Object code and executable code. Processes, interrupt, switching of process, long jump in C. Virtual memory and dynamic memory allocation. I/O. Networks. Concurrent programming with threads, processes etc and related problems as race conditions and deadlocks.

## Course literature

R. E. Bryant and D. O'Hallaran: Computer Systems a Programmer's Perspective, Prentice Hall.

## Examination

- LAB2 - Laboratory Work, 3.0 credits, grading scale: A, B, C, D, E, FX, F
- TEN1 - Examination, 1.5 credits, grading scale: A, B, C, D, E, FX, F
- LAB1 - Laboratory Work, 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.

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

## Other requirements for final grade

Laboratory assignments (LAB1; 3 university credits) (LAB2; 3 university credits), examination (TEN1; 1,5 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.