

Syllabus

for course at first level

Low Level Programming and Computer Architecture
Maskinnära programmering och datorarkitektur

6.0 Higher Education
Credits
6.0 ECTS credits

Course code:	DA3020
Valid from:	Spring 2019
Date of approval:	2018-05-14
Department	Department of Mathematics (incl. Math. Statistics)
Main field:	Computer Science
Specialisation:	G1F - First cycle, has less than 60 credits in first-cycle course/s as entry requirements

Decision

This syllabus has been approved by the Board of the Faculty of Science at Stockholm University,

Prerequisites and special admittance requirements

For course admission knowledge equivalent to Computer Science for Mathematicians, FL, 7.5 HEC (DA3018) or Object Oriented Programming, FL, 7.5 HEC (DA3002) is required.

Course structure

Examination code	Name	Higher Education Credits
LABO	Practical Exercises	4.5
THEO	Theory	1.5

Course content

a. The course covers:

- Different forms of data and how they are represented in the computer: numbers, text and computer programs.
- Machine code and assembler programming.
- The architecture of computers, CISC and RISC.
- Pipelining, out-of-order processing and related problems.
- The memory hierarchy from register to hard disk.
- C programming in general but especially optimization on the word and bit level.
- Exercise in using disassembler, debugger etc.

b. The course consists of the following items:

- Theory 1.5 HECs
- Practical Exercises 4.5 HECs

Learning outcomes

It is expected that the student after taking the course will be able to describe how:

- data and computer programs are stored on the computer,
- computer programs are executed on different levels,
- computers interpret and execute machine code,
- computers are constructed.

The student shall also be able to read, understand, and write assembler programs.

Education

The education consists of lectures.

Forms of examination

a. Examination for the course is in the following manner: measurement of knowledge takes place through written examination, and written and oral presentations of the practical exercises.

b. Grading is carried out according to a 7-point scale related to learning objectives:

A = Excellent
B = Very Good
C = Good
D = Satisfactory
E = Sufficient
Fx = Fail
F = Fail

c. Grading criteria for the course will be distributed at the start of the course.

d. A minimum grade of E is required to pass the course.

e. Students who receive a failing grade on a regular examination are allowed to retake the examination as long as the course is still provided. The number of examination opportunities is not limited. Other mandatory course elements are equated with examinations. A student who has received a passing grade on an examination may not retake the examination to attain a higher grade. A student who has failed the same examination twice is entitled to have another examiner appointed, unless there are special reasons to the contrary. Such requests should be made to the department board.

The course includes at least two examination opportunities per year when the course is given. At least one examination opportunity will be offered during a year when the course is not given.

f. Students awarded the grade Fx are given the opportunity to improve their grade to E. The examiner decides the supplementary assignments to be performed and the pass mark criteria. The supplementary assignments will take place before the next examination session.

Interim

Students may request that the examination is carried out in accordance with this syllabus even after it has ceased to apply. This right is limited, however, to a maximum of three occasions during a two-year-period after the end of giving the course. A request for such examination must be sent to the departmental board.

Limitations

The course may not be included in a degree together with the course Low Level Programming and Computer Architecture, Advanced Course (DA7009).

Misc

The course is an individual course.

Required reading

Course literature is decided by the departmental board and is described in an appendix to the syllabus.