Course syllabus

Faculty of Technology

Department of Computer Science and Media Technology

1DT301 Datorteknik I, 7.5 credits
Computer Technology 1

Main field of study
Electrical Engineering

Subject Group
Computer Science

Level of classification
First Level

Progression
G1F

Date of Ratification
Approved 2014-10-03
Revised 2021-02-16 by Faculty of Technology. Literature list is revised.
The course syllabus is valid from autumn semester 2021

Prerequisites
Introduction to programming 7.5 credits (1DV501) or Problem Solving and Programming 7.5 credits (1DV506) or equivalent.

Objectives
After the course the student should have knowledge about:

- computer hardware
- microprocessors
- assembler programming
- computer communication with units outside the computer
- interrupts
- write, test and troubleshoot computer programs in assembler on the actual microprocessor
- develop simple programs in assembler

Content
The AVR ATMEGA16, PIC16F877 or a similar microprocessor and a specific development card are used in the course.

Practical work and lectures are based on the actual microprocessor.

The course consists of the following topics:

- programming in assembler
- computer hardware
- computer architecture
- address-, data- and control buses
- input and output units
- timers
- interrupts
- microprocessor, memory and memory handling
- higher level programs and assembler

Type of Instruction
Lectures and practical work. Practical work is mandatory.

Examination
The course is assessed with the grades A, B, C, D, E, Fx or F.

The grade A constitutes the highest grade on the scale and the remaining grades follow in descending order where the grade E is the lowest grade on the scale that will result in a pass. The grade F means that the student’s performance is assessed as fail (i.e. received the grade F).

Written reports of laboratory experiments and/or written examination. The assessment method is decided at the start of the course.

Repeat examination is offered in accordance with Local regulations for courses and examination at the first and second-cycle level at Linnaeus University.

If the university has decided that a student is entitled to special pedagogical support due to a disability, the examiner has the right to give a customised exam or to have the student conduct the exam in an alternative way.

Course Evaluation
During the implementation of the course or in close conjunction with the course, a course evaluation is to be carried out. Results and analysis of the course evaluation are to be promptly presented as feedback to the students who have completed the course. Students who participate during the next course instance receive feedback at the start of the course. The course evaluation is to be carried out anonymously.

Credit Overlap
The course cannot be included in a degree along with the following course/courses of which the content fully, or partly, corresponds to the content of this course: 1DT101 Computer Technology 1, 7.5 credits

Other
Grade criteria for the A–F scale are communicated to the student through a special document. The student is to be informed about the grade criteria for the course by the start of the course at the latest.

Required Reading and Additional Study Material
Required reading
Richard H. Barnett, Sarah Cox, Larry O'Cull: *Embedded C Programming and the Atmel*

AVR, CENGAGE Learning; 2 edition, 2006. ISBN-13: 978-1418039592. 560 pages.