



HE1028 Computer Engineering

8.0 credits

Mikrodatorteknik

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

Establishment

Grading scale

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

Education cycle

First cycle

Main field of study

Technology

Specific prerequisites

Basic knowledge in digital electronics and basic knowledge in C programming

Language of instruction

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

Intended learning outcomes

The aim of the course is to give knowledge in the design of embedded computer systems, their function, programming and applications.

After completing of this course students are to:

- be able to understand the design of a micro computer system
- be able to understand the function and use of peripheral devices
- be able to understand the communication between different units within a computer system
- be able to program a computer system in assembler as well as in high level language
- have good skills in using development tools for embedded systems

Course contents

- Binary arithmetics
- Be able to analyse and design combinatory systems
- Computer models: von Neuman and Harvard architecture, CISC and RISC
- The function of the micro computer on register level
- Signals of a micro computer
- Interrupt handling in hardware and software
- Parallel and serial interfaces
- Timers and other peripheral devices
- Program design
- Assembler programming
- Low level programming in C

Course literature

Pic Microcontroller and Embedded Systems Using Assembly and C for Pic18

Författare : Muhammad Ali Mazidi, Rolin D.Mcinlay , Danny Causey

Pearson, Prentice Hall

Microchip Pic18F458 Data Sheet

Samt e-läroböcker online på internet

Examination

- TEN1 - Examination, 3.0 credits, grading scale: A, B, C, D, E, FX, F

- LAB1 - Laboratory Work, 5.0 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.

Passed lab work

(LAB1, 5 cr. grade scale A/B/C/D/E/Fx/F)

Passed accounts/

Passed written exam

(TEN1, 3 cr. grade scale A/B/C/D/E/Fx/F)

Final grade: grade scale A/B/C/D/E/Fx/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.