ML1305 Micro Computer Project Course 6.0 credits

Mikrodator projektkurs

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

Establishment

Course syllabus for ML1305 valid from Spring 2013

Grading scale

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

Education cycle

First cycle

Main field of study

Technology

Specific prerequisites

Basic knowledge from 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 main purpose of the course is to provide knowledge in the design, function and programming of embedded systems.

After completing the course the student should be able to:

- Explain the function and design of a microcontroller system
- Explain the function and how to use I/O ports, Timers, ADC and serial interfaces
- Program a microcontroller system in a high-level language
- Use development tools for programming and debugging embedded systems
- Explain and use interrupt handling with multiple interrupts
- Develop a mechatronical prototype with microcontrollers, sensors and communication interface

Course contents

- Computer models: von Neumann and Harward architecture, CISC and RISC
- The function of a microcontroller on registry level
- Interrupt handling in hardware and software
- Parallel and serial interfaces
- Timers, Compare, Capture and PWM
- Structured programming
- Hardware oriented programming in C
- Project in mechatronics

Disposition

Theoretic
Project

Course literature

Manual för aktuell mikrokontroller
Kursbunt

Examination

- PRO1 - Project, 3.0 credits, grading scale: P, F
- TEN1 - Written Exam, 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.

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.