ML1315 Micro Computers 6.0 credits

Mikrodatorer

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

Establishment

Course syllabus for ML1315 valid from Spring 2015

Grading scale

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

Education cycle

First cycle

Main field of study

Technology

Specific prerequisites

Language of instruction

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

Intended learning outcomes

On completion of the course, the student should be able to:

- explain the structure of control circuits and embedded processors
- account for the function and the usage of I/O ports, timers, analog-to-digital converters and serial interfaces.
- program the hardware in a control circuit system in a high level language
- use and utilise development tools for programming and troubleshooting of embedded systems
- account for and utilise interrupt handling with different types of interrupts
- be able to use and program common types of displays and the communication interfaces

Course contents

- Computer models, von Neumann and Harvard architecture, CISC and RISC
- The function of the micro-controller at register level
- Interrupt handling in hardware and software
- Parallel and serial interfaces
- Timers, Compare, Capture and PWM program design.
- Low level programming in C

Disposition

Lectures Laboratory exercises Exercises

Course literature

Manual för aktuell mikrokontroller(distribueras via intranät vid kursstart)

Programming Embedded systems av Lars Bengtsson, ISBN 978-91-44-10503-1. Studentlitteratur 2014

Examination

- TENA - Examination, 3.0 credits, grading scale: A, B, C, D, E, FX, F
- LABA - Laboratory Work, 3.0 credits, grading scale: P, 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

Passed written examination Passed laboratory sessions

The final grade is decided by the result of written examination.

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.