IS1300 Embedded Systems 7.5 credits

Inbyggda system

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

If the course is discontinued, students may request to be examined during the following two academic years

Establishment

Course syllabus for IS1300 valid from Spring 2015

Grading scale

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

Education cycle

First cycle

Main field of study

Technology

Specific prerequisites

Completed upper secondary education including documented proficiency in Swedish corresponding to Swedish B and English corresponding to English A. For students who received/will receive their final school grades after 31 December 2009, there is an additional entry requirement for mathematics as follows: documented proficiency in mathematics corresponding to Mathematics A. And the specific requirements of mathematics, physics and chemistry corresponding to Mathematics D, Physics B and Chemistry A.

IS1200 Computer Hardware Engineering, or equivalent, and at least one courseinbasic programming.

Language of instruction

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

Intended learning outcomes

Basic course in embedded systems.

The student will get knowledge about important concepts and knowledge and skills about methods in this area and be able to limit requirements to specify an embedded system.

This means that the student after passing the course will for an embedded system be able to:

- read requirements and write a specification
- design architecture of both hardware and software
- describe the microcontroller used in the system
- describe the use of I/O ports for external signals and comminication with circuits
- compare and analyse different ways to handle real time problems
- realise the software for a given problem
- give examples of soft- and hard real time problems
- describe usual methods for scheduling tasks and describe how to communicate between tasks
- use a real time operativ system to implement a program in a time critical system
- plan, design and implement a strategy for testing
- write a technical report describing the system.

Course contents

Labs to be familiar with software and hardware.

Computer based tools is used in the course.

Examples of processor types and operating systems.

Examples of interface and communication.

Programming tools, programming language and programming.

System tools and system design.

Consequencies of real time problems.

Course literature

Handouts and web-based material.

Examination

- LAB1 - Laboratory Work, 4.5 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.

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.