



MF2095 Programming in C for Embedded Systems

3.0 credits

Programmering i C för inbyggda styrsystem

Course syllabus for MF2095 valid from Autumn 17

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

Grading scale: P, F

Education cycle: Second cycle

Main field of study: Mechanical Engineering

Intended learning outcomes

After passing the course, the students should be able to:

- explain the structure of control circuits and embedded processors
- account for the function and the use of I/O ports, timers, ADC, and serial interfaces
- program the hardware in a control circuit system using C
- 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 communication interfaces

Course main content

The following modules are included in the course:

- 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
- JSP- Jackson structured programming

Disposition

The course includes lectures, laboratory exercises and individual work.

Language of instruction

Language of instruction is specified in the course offering information in the course and programme directory.

Eligibility

MF1016 Electrical engineering or the equivalent

DD1321 Applied programming and computer science or the equivalent

Literature

Course-related literature is distributed at the beginning of the course.

Examination

- LAB1 - Laboratory work, 1.0 credits, grading scale: P, F
- LAB2 - Laboratory work, 1.0 credits, grading scale: P, F
- LAB3 - Laboratory work, 1.0 credits, grading scale: P, F

The examination of the course consists of three components in the form of laboratory sessions. Before each laboratory session, a preparatory assignment is required.

Requirements for final grade

Passing the course requires a pass grade for three laboratory sessions, 3 x 1 credits.