



Course syllabus

Faculty of Technology

Department of Computer Science and Media Technology

1DT100 Datorteknik - introduktion med projektarbete, 7,5
högskolepoäng

Computer Technology - introduction and project, 7.5 credits

Main field of study

Computer Engineering

Subject Group

Computer Science

Level of classification

First Level

Progression

G1N

Date of Ratification

Approved 2013-09-11

Revised 2019-05-11 by Faculty of Technology. Literature list is revised.

The course syllabus is valid from autumn semester 2019

Prerequisites

General entry requirements and Mathematics 2a / 2b / 2c, Physics 1b1 / 1a or
Mathematics B, Physics A (Field-specific entry requirements 7/A7).

Objectives

After completing the course, students should be able to:

- describe in detail the basic components of a computer, such as motherboard, main memory, secondary memory, input-output devices, power supplies, buses etc.
- comprehensively describe different memory technologies
- describe in detail analog / digital conversion and digital / analog conversion
- basics and principles for simple data communication
- write computer programs to the single chip computer Arduino
- adapt an existing Arduino application or program examples for a given task
- connect components to the Arduino module and customize the software to your components
- connect Arduino module to a wireless communication module, such as ZigBee and customize a program for communication via this
- implement a project that involves the adaptation of hardware and programming of Arduino or similar computer

Content

The course comprises the following topics:

- basic circuit theory
- electricity in the home and electrical safety
- computer's various components
- data communication
- function of single chip computer
- Arduino platform
- programming of Arduino
- how Arduino and other microcontrollers can be used in larger systems
- various memory technologies for single chip and single board computers
- analog / digital conversion and digital / analog conversion
- single chip computer input and output devices
- pulse width modulation, PWM
- serial data communication, RS232
- project work

Type of Instruction

Teaching consists of lectures, laboratory sessions, project work and assignments. Main focus are on laboratory sessions and project work.

Examination

The course is assessed with the grades U, 3, 4 or 5.

Assessment of student performance is made through written test and/or oral examinations and/or presentation of mandatory assignments. The assessment method is decided at the start of the course.

Students who do not pass the regular examination will be offered retrials close to the regular examination.

Course Evaluation

A course evaluation will be carried out and compiled after the course is completed. The compilation will be presented to the current board as well as to the students and filed by the coordinating department.

Required Reading and Additional Study Material

Required reading

Together with the course coordinator, relevant literature will be selected.