HI1200 Computer Programming, Basic Course 6.0 credits

Grundläggande programmering

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

Establishment

Course syllabus for HI1200 valid from Autumn 2008

Grading scale

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

Education cycle

First cycle

Main field of study

Technology, Information Technology

Specific prerequisites

Basic computer skills. General entrance requirements. - successful completion of upper secondary education, knowledge of Swedish and English

Language of instruction

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

Intended learning outcomes

The course will be an introduction to programming in an **imperative programming language**. The course will give a solid ground in programming for coming courses in the program, and also for applied courses in the program such as image processing, automatic control and computer simulations.

To obtain a pass, the student shall know how to write structured programs, where these things are specially important:

- create easy algorithms for given problems and translate them to program code.
- use an IDE to write, execute and debug programs.
- choose and use simple and more complex data types and variables.
- explain the difference between **parameters passed by value** and **reference parameters**. Know how different data types are stored in memory.
- write functions for well defined problems.
- break up a problem in sub problems, implement and test, step by step, choosing suitable test data.
- divide a program in more source files to support **abstraction, reuse** and **maintenance**.
- write programs with help of : **top down design, pseudo-code** and **flowchart**
- use external files for data storage

For higher grades, the student shall also master:

- analysis of more complex programming tasks. Structuring the solution in more levels including: problem analysis, overall design, well formed graphical user interface, divide the problem in sub problems, modules and functions and implementation.

Course contents

- Introduction to programming languages
- Problem analysis and structured programming
- Module programmering, debugging and testing
- Variables, basic and structured data types
- Sequence, selection and repetition
- Operators and arithmetics
- Functions
- Data files
- Implementation in a mathematical programming language, such as MatLab.

Course literature

Chapman, MatLab Programming for Engineers, 4th ed, Thomson, ISBN 0-495-24451-1

Examination

- ÖVN1 - Exercises, 3.0 credits, grading scale: P, F
- TEN1 - Examination, 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.