



# HM1007 Computer Programming 7.5 credits

## Programmering

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

## Establishment

Course syllabus for HM1007 valid from Autumn 2007

## Grading scale

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

## Education cycle

First cycle

## Main field of study

Information Technology, Technology

## Specific prerequisites

Knowledge corresponding to admission requirements for Bachelor of Science in Engineering.

Basic experience of computers.

## Language of instruction

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

## Intended learning outcomes

The course provides basic knowledge of an imperative programming language.

In order to pass, the student should be able to write structured programs in a given language, with particular focus on the following:

- formulate simple algorithms for given problems and realise these algorithms in program code
- use an IDE to write, execute and debug a program
- introduce and choose data types and variables, including compound, for data storage
- explain the difference between variable value and address/reference, and differences in memory use when storing different data types
- write functions for well delimited assignments
- divide problems in parts, implement and test step-by-step, by selecting appropriate test data
- divide a program in several modules/files to promote abstraction, reusing and maintenance
- write executable programs from a simple program design
- use external files for data storage

For higher marks, the student shall be able to

- analyse larger programming assignments and structure solutions on several levels, containing problem analysis, comprehensive design, well designed user interface, separation of a problem into parts, modules and functions, and implementation

## Course contents

- Background, introduction to programming languages
- Data types, variables, references
- Operators
- Sequence, selection, repetition
- One- and multidimensional arrays
- Functions, modular programming
- Problem analysis and structure, debugging, testing
- String operations
- File handling

## Course literature

The course literature is posted on the course's homepage at least four weeks before the course starts.

The previous academic year used the following literature:

Chapman S J, MATLAB Programming for Engineers, 3rd/4th ed. Thomson 2004/Cengage 2008.

## Examination

- ÖVN1 - Exercises, 4.5 credits, grading scale: A, B, C, D, E, FX, 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.

## Other requirements for final grade

Passed written exam.

Passed computer exercises.

## 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.