ML1302 Computerized Engineering Tools 11.0 credits

Datorbaserade ingenjörsverktyg

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

Establishment

Course syllabus for ML1302 valid from Autumn 2012

Grading scale

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

Education cycle

First cycle

Main field of study

Technology

Specific prerequisites

Language of instruction

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

Intended learning outcomes

The first goal of the course is to give students a basic introduction to the use of computer tools for design and product development. The second goal of the course is to provide a basic knowledge of a modern programming language.

After completing the course the students will be able to:

- Use a 3D CAD system to build and modify simple digital solid models
- Based on solid models build and modify digital assemblies
- Create drawings from solid models and assemblies
- Read and interpret simple 2D-drawings
- Formulate simple algorithms for the given problems and upload them to the program
- Using a development environment to write, execute and debug a program.
- Introduce and use data types and variables, including composite, for storing data
- addresses and variable value
- Be able to perform simple software design i.e. break down the problem into sub-problems, implement, and test by function, step by step, with the selection of appropriate test data
- Using external files for data storage

Course contents

- Solid modelling in 3D CAD software
- 3D CAD assembly
- Produce drawings
- Technical drawing
- Background and introduction to programming
- Data types, variables, references
- Operators
- Sequence, selection, repetition
- Single-and multi-dimensional arrays
- Functions, modular programming
- Problem analysis, restructuring, debugging and testing
- Text handling
- File Management

Disposition

- lectures
- computer labs
- written test

Course literature

- Per Jönsson, MATLAB-beräkningar inom teknik och naturvetenskap, Studentlitteratur
- Peter Hallberg, Introduktion till ett CAD-verktyg, upplagan som kommer 2013, Monomoon förlag

Examination

- CAD1 - CAD Exercises, 5.0 credits, grading scale: P, F
- KON1 - Continous Examination, 1.5 credits, grading scale: P, F
- ÖVN1 - Computer Exercises, 4.5 credits, grading scale: P, 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

Approved computer labs (4,5 hp)
Approved CAD assignments (5 hp)
Approved written test (1,5 hp)

The final grade is based on criteria for the constituent elements which are announced at the start of the course.

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.