MG2028 CAD and Other IT Tools in Industrial Processes 6.0 credits

Inte bara CAD - IT-verktyg i industriell produktframtagning

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

Establishment

Course syllabus for MG2028 valid from Autumn 2015

Grading scale

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

Education cycle

Second cycle

Main field of study

Mechanical Engineering

Specific prerequisites

MF1061 Design and Product Realization, Introduction
or
MJ1103 Introduction to Mechanical Engineering

or the equivalent

Swedish B and English A or the equivalent

Language of instruction

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

Intended learning outcomes

After passing the course, the student will be able to:

- create robust models, which could easily be understood and further developed by others, in a modern CAD system
- perform a simple analysis of the strength features of a part model, by using a FEM system
- use a CAM system for creating a simple production plan for a part model, and build and use a machine tool model for simulation of the manufacturing process
- create and use a simple configuration model in a product configuration system, integrated with a CAD system
- create and exchange information about a product and its manufacturing by:
  - using common exchange formats for product data exchange between different information handling
    software systems
  - using CAD system functionality in a structured manner, to communicate CAD related data
- understand and describe, using your own words, how product and production information is handled in manufacturing companies, and how they use IT tools in their product realization processes
- give an account of the most common problems regarding information handling in a product realization process

Course contents

Methods for creating robust CAD models

Methodology and information handling in the industrial product realization process

Standards for representing, sharing and exchanging product data

FEM and other CAE systems

Production planning, CAM

Product configuration

Other systems and activities which utilize the CAD model, e.g. Metrology and Additive manufacturing

Disposition

Following an introductory part where CAD skills are further developed, the course is divided into different subtasks, each focusing on one type of IT tool used by mechanical engineers in manufacturing industry. Each of these tasks include at least one introductory lecture, or guest lecture dealing with industrial aspects, and one supervised computer laboratory exercise. In addition to this basic computer exercise, and compulsdory homework assignments, the students can opt to take further, more advanced, non-supervised, non-scheduled homework assignments. Much of the work during the course is hands-on, working in our department's computer lab.

Course literature

Görs tillgängligt i Bilda för registrerade kursdeltagare

Examination

- INL1 - Homework assignments CAD, 1.5 credits, grading scale: A, B, C, D, E, FX, F
- INL2 - Homework assignments other, 3.0 credits, grading scale: A, B, C, D, E, FX, F
- LABA - Laboratory Excercises other, 1.5 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.

To get a higher than "passing" grade, a number of completed optional homework assignments and/or an individual technical report is required.

Other requirements for final grade

Approved homework assignments in robust CAD (INL1; 1,5 cr)

Approved guest lecture attendance and homework assignments (INL2; 3 cr)

Approved software laboratory exercises (LABA; 1,5 cr)

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.