# 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 2011

## Grading scale

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

## Education cycle

Second cycle

## Main field of study

Mechanical Engineering

## Specific prerequisites

MF1046 Design and Product Realization, Introduction
or
MJ1103 Introduction to Mechanical Engineering

or equivalent

Swedish B and English A or equivalent

## Language of instruction

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

## Intended learning outcomes

After completing the course requirements each student should be able to:·

- create robust CAD models, which could easily be understood and further developed by others
- as a member of a project group create and exchange information about a product and its manufacturing by:
- creating models of complex products and their features, using a modern CAD system
- performing a simple analysis of the strength features of a part model, by using a FEM program
- creating a simple production plan for a CAD part model, using a CAM system
- using common exchange formats for product data exchange between different information handling software systems
- understand and expressed in his/her own words a description of how product and production information is handled in a manufacturing company, and how they use IT tools in their product realization process
- give an account of the most common problems regarding information handling in a product realization process
- express in his/her own words the principal modules and the most important user functions in a PDM system
- create a simple configuration model in a product configuration system integrated with CAD

## Course contents

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

**Task 1:** Methodology and information handling in the product realization process including a computer exercise in PDM.

**Task 2:** FEM and other CAE systems. Computer exercise, using a FEM system.

**Task 3:** Production planning, CAM. Computer exercise in CAM.

**Task 4:** Standards for representing, sharing and exchanging product data. Computer exercise in product data exchange

**Task 5:** Other systems and activities which utilize the CAD model, e.g. Metrology and Product configuration

## Course literature

Available through Bilda for students participating in the course

## 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

Homework assignments (ÖVN1; 3 cr)

Exercises in robust CAD (ÖVN2; 1,5 cr)

Software laboratory exercises (LAB1; 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.