



MG1006 Design and Product Realization - Manufacturing 6.0 credits

Design och produktframtagning - tillverkningsteknik

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

If the course is discontinued, students may request to be examined during the following two academic years

Establishment

Course syllabus for MG1006 valid from Spring 2012

Grading scale

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

Education cycle

First cycle

Main field of study

Technology

Specific prerequisites

Compulsory for CDEPR2, CINEK2 IPI

Language of instruction

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

Intended learning outcomes

After completing this course you will be able to:

- explain common cutting, shaping and joining manufacturing processes used in the manufacturing industry, and apply these processes to produce simple metal components
- select a proper manufacturing process based on component size, shape, tolerances and mechanical properties
- propose appropriate surface treatment methods, and give examples of technical and mechanical surface function,
- develop a process plan for the manufacturing of simple metallic components, using manual or numerically controlled machine tools (lathes and milling machines), including selection of tools, calculation of cutting data, and generation of part programs
- use basic metrology, to verify the function and quality of a manufactured product
- create a manufacturing drawing including section and detail views, to specify dimensions and numerical tolerances
- describe a typical product realization process (raw material -> design -> manufacturing -> product)

On the course website, a detailed description of specific learning outcome is specified for each part of the course

Course contents

In the course you will study the most common manufacturing processes and systems used in industry.

Numerically controlled machine tools are important components of a modern manufacturing company. You will use these machines in activities throughout the design, programming, rigging, test drive and manufacturing of a steel component.

Other areas covered in the course are engineering drawings as a means of communication, common polymer materials, basic metrology techniques used to verify the function and quality, the technical characteristics of surfaces and surface treatment.

Classes include lectures, labs and company visits. Lectures deal with basic theory and applied technology, for each course section.

To develop your practical skills, the course includes hands-on laboratory exercises in our mechanical workshop.

Disposition

Lectures: 20 h.
Exercises: 12 h.
Lab: 12 h.
Period 4

Course literature

Tillverkningssteknologi (Manufacturing Technology, In Swedish), Jarfors, Studentlitteratur 2006.

In addition, lab instructions and lecture notes will be made available throughout the course

Examination

- LAB1 - Laboratory work, 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.

Laboratory exercises are only offered during ongoing course

Other requirements for final grade

Written examination (TEN1, 3 cr)

Laboratory exercises including preparatory work (LAB1, 3cr)

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.