MG1006 Design and Product Realization - Manufacturing 6.0 credits

Design och produktframtagning - tillverkningsteknik

Course syllabus for MG1006 valid from Spring 12

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

**Grading scale:** A, B, C, D, E, FX, F

**Education cycle:** First cycle

**Main field of study:** Technology

### 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 main content

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

Language of instruction

Language of instruction is specified in the course offering information in the course and programme directory.

Eligibility

Compulsory for CDEPR2, CINEK2 IPI

Literature

Tillverkningsteknologi (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

Laboratory exercises are only offered during ongoing course

Requirements for final grade

Written examination (TEN1, 3 cr)

Laboratory exercises including preparatory work (LAB1, 3cr)