



Faculty of Technology and Science
Mechanical and Materials Engineering

Syllabus

Course Approval

The syllabus was approved by the Faculty Board of Technology and Science on 31 October 2012, and is valid from the Autumn semester of 2013 at Karlstad University.

Course Code: MTGC13

Manufacturing Technology, 7.5 ECTS Credits
(Tillverkningssteknik, 7.5 Swedish credit points)

Degree Level: Bachelor

Progressive Specialisation: G2F (First cycle, has at least 60 credits in first-cycle course/s as entry requirements)

Language of Instruction

Swedish and English

Prerequisites

Mechanics 7,5 ECTS, Solid Mechanics 7,5 ECTS, Materials Engineering 7,5 ECTS or the equivalent.

Major Field of Study

MTA (Mechanical Engineering)

Learning Outcomes

The aim of the course is that students acquire skills in evaluating and selecting adequate manufacturing methods for a given detail or product, as well general knowledge of methods used in the mechanical engineering manufacturing industry. They should also further develop their knowledge of the manufacturing process from a materials technological perspective.

Upon completion of the course, students should be able to:

- suggest suitable manufacturing methods and manufacturing stages for simple details and products
- select appropriate materials for a product on the basis of technological possibilities for manufacturing
- give an account of the central concepts of manufacturing technology in respect to process stages, method variants and equipment

- give an account of the most common general concepts in the mechanical engineering manufacturing process as regards process stages, method variants, and equipment:
 - * mold-based manufacture
 - * plastic processing
 - * cutting processing
 - * joining
 - * engineering metrology

- give a general account the methodological basis of the following methods:
 - * powder metallurgical manufacturing
 - * laser processing

- * electric discharging method (EDM)
- * high speed machining (HSM)

- give an account of the basic concepts in the field of manufacturing systems.

Content and Form of Instruction

Instruction is in the form of mandatory laboratory assignments in the workshop on measurement techniques and manufacturing methods such as:

- lathe machining (turning)
- milling
- drilling
- CNC-technology
- plastic processing
- welding.

There are also lectures, and mandatory field trips.

The course includes advanced study of the limitations of materials engineering in the manufacturing process.

Reading List

See separate document.

Examination

Examination is based on a written exam, active participation in the mandatory laboratory assignments, field trips, hand-in assignments, and the documentation and presentation of a project.

Grades

One of the grades Fail, 3 (Pass), 4 (Some Distinction), or 5 (Distinction) is awarded in the examination of the course.

Quality Assurance

Follow-up relating to learning conditions and goal-fulfilment takes place both during and upon completion of the course in order to ensure continuous improvement. Course assessment is based on student views and experiences as reported in written course evaluations and/or group discussions. Students will be informed of the result of the evaluation and of the measures to be taken.

Course Certificate

A course certificate will be provided upon request.

Additional Information

Students who enrolled before 1 July 2007 will complete their studies in accordance with the requirements of the earlier admission. Upon completion students may request degree and course certificates to be issued under the current ordinance if they meet its requirements.

The local regulations for studies at the Bachelor's and Master's levels at Karlstad University stipulate the obligations and rights of students and staff.