



Faculty of Technology and Science
Mechanical Engineering

Syllabus

Course Approval

The syllabus was approved by the Faculty Board of Technology and Science on 26 September 2008, and is valid from the Autumn semester of 2008 at Karlstad University.

Course Code: MSGB23

Machine components, 7.5 ECTS Credits
(Maskinelement, 7.5 Swedish credit points)

Degree Level: Bachelor

Progression Level: B

Language of Instruction

Swedish

Prerequisites

Mathematics 15 ECTS Credits, mechanical engineering 15 ECTS Credits (including mechanics and solid mechanics), or the equivalent.

Major Field of Study

Mechanical Engineering

Learning Outcomes

The aim of the course is that students will acquire basic knowledge of various machine components and their function, as well as being trained in design methodology and selection of machine components.

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

- give an account of the theoretical basis of function and design
- give an account of various components in different applications and their advantages and disadvantages
- determine appropriate design parameters
- select, on the basis of a problem formulation, suitable machine components from standards and catalogs of machine components, including bolt joints, weld joints, press- and shrink joints, springs, shafts, bearings, gears, shaft couplings, and brakes
- theoretically identify and describe the common components of a drive line and a drive system, and calculate the system performance taking strength, degrees of efficiency, and gear ratios into account
- give an account of the basic theory of the critical rotation speed for shafts
- give an account of the main features of the CE marking process according to European Directives for machinery.

Content and Form of Instruction

The course contains the following elements:

- lectures on common types of machine components; theoretical basis, design, and selection criteria
- exercises or individual work on designing, selection and calculation of machine components
- obligatory laboratory assignment.

Reading List

See separate document.

Examination

Examination is in the form of a laboratory assignment and written exam.

Grades

One of the grades Fail (U), 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, ref. C2007/368, stipulate the obligations and rights of students and staff.

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