



Faculty of Health, Science and Technology
Mechanical and Materials Engineering

Syllabus

Machine components

Course Code:	MSGB40
Course Title:	Machine components <i>Maskinelement</i>
Credits:	7.5
Degree Level:	Undergraduate level
Progressive Specialisation:	First cycle, has less than 60 credits in first-cycle course/s as entry requirements (G1F)

Major Field of Study:
MTA (Mechanical Engineering)

Course Approval

The syllabus was approved by the Faculty of Health, Science and Technology 2015-11-09, and is valid from the Spring semester 2016 at Karlstad University.

Prerequisites

Mechanics 7.5 ECTS cr and Solid Mechanics 7.5 ECTS cr, or equivalent

Learning Outcomes

The aim of the course is that students acquire basic knowledge of the theoretical foundation, function and performance of common types of machine components, and how these are implemented as components in machine technical systems. The machine components treated are principally roller bearings, slide bearings, screw joints, springs, brakes, belt drives, press joint and shrink fittings. Basic reading of drawings is included.

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

- read and interpret simple machine drawings in terms of shape, measurements and materials,
- give an account of the theoretical foundation of the function and dimensioning of different machine components,
- give an account of the use of different machine components in various applications and their advantages and disadvantages,
- identify and calculate the dimensioning parameters of various machine components,
- choose suitable machine components from standards and catalogues based on a problem,
- theoretically identify and describe the common components of a drivetrain and a driving system and calculate the performance of the system regarding strength, effectiveness and gear ratio,
- give an account of a simple theory of the critical speed of shafts.

Content

In lectures, the theoretical foundation, function, performance and dimension criteria of the most common machine components are described. Variants of machine components and their advantages

and disadvantages are treated along with their suitability for different machines and systems, with a special emphasis on the components and performance of drive systems, which is also explored in a laboratory session.

In supervised exercises and individual work, students practise choosing and dimensioning different machine components for different requirements and also practise reading basic mechanical drawings.

Reading List

See separate document.

Examination

Assessment is based on a written exam, mandatory hand-in assignments and mandatory laboratory work.

Grades

One of the grades 5 (Pass with Distinction), 4 (Pass with Some Distinction), 3 (Pass), or U (Fail) 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 evaluation is partly based on student views and experiences obtained in accordance with current regulations and partly on other data and documentation. Students will be informed of the result of the evaluation and of any measures to be taken.

Course Certificate

A course certificate will be provided upon request.

Additional information

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