Reg No: MSGB40/20231

Faculty of Health, Science and Technology
Mechanical Engineering

Syllabus

Machine components

Course Code:	MSGB40
Course Title:	Machine components *Maskinelement*
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 2022-08-30, and is valid from the Spring semester 2023 at Karlstad University.

Prerequisites
Registered for Master programme courses Mechanics 1, 7.5 ECTS credits and Solid Mechanics 1, 7.5 ECTS credits, 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.

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.

The machine components treated are principally roller bearings, slide bearings, screw joints, springs, brakes, belt drives, press joint and shrink fittings, axles and shaft couplings. Basic reading of drawings is included.

Reading List
See separate document.

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

If students have a decision from Karlstad University entitling them to Targeted Study Support due to a documented disability, the examiner has the right to give such students an adapted examination or to examine them in a different manner.

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.