



Faculty of Health, Science and Technology  
Mechanical Engineering

## Syllabus

### Machine design 1, Mechanical engineering

<b>Course Code:</b>	MSGB46
<b>Course Title:</b>	Machine design 1, Mechanical engineering <i>Konstruktionsteknik I, Maskin</i>
<b>Credits:</b>	7.5
<b>Degree Level:</b>	Undergraduate level
<b>Progressive Specialisation:</b>	First cycle, has at least 60 credits in first-cycle course/s as entry requirements (G2F)

**Major Field of Study:**  
MTA (Mechanical Engineering)

#### Course Approval

The syllabus was approved by the Faculty of Health, Science and Technology 2019-04-01, and is valid from the Spring semester 2020 at Karlstad University.

#### Prerequisites

Mechanics, 7.5 ECTS credits, Solid Mechanics, 7.5 ECTS credits, Materials Engineering, 7.5 ECTS credits, and Machine Components, 7.5 ECTS credits, or registration on the Mechanical Engineering programme, or equivalent

#### Learning Outcomes

The aim of the course is that students acquire further knowledge of mechanical engineering construction in the areas of construction methods, solid modelling, and drawing.

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

Construction

- give an account of the main stages of a product manufacturing process,
- give an account of the relation between form, materials, and the manufacturing process,
- describe common construction support methods,
- independently structure, plan, and complete a construction task on the basis of a given specification or requirements, including choice of materials and manufacturing method, and
- use relevant assumptions and simplifications to calculate a construction.

#### Solid modelling and drawing

- model and edit parts and configurations in a 3D CAD program,
- produce 2D drawings of details and configurations in a 3D CAD program,
- structure variant designs using family tables and relations in a 3D CAD program, and
- structure complex designs using top-down functions in a 3D CAD program.

#### **Content**

Basic knowledge of the course components is provided through lectures, literature, and supervised exercises in solid modelling and drawing, both manually and in a 3D CAD program. This knowledge is then integrated in one or several construction assignments, completed in groups and presented in seminars where the solutions are discussed.

#### **Reading List**

See separate document.

#### **Examination**

Assessment is based on hand-in assignments and mandatory seminars.

#### **Grades**

One of the grades Distinction (VG), Pass (G), or Fail (U) 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.