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Faculty of Health, Science and Technology

## Study Plan

### Study Program in Mechanical Engineering

<b>Programme Code</b>	TGHMT
<b>Programme Title</b>	Study Program in Mechanical Engineering Högskoleingenjörsprogrammet i maskinteknik
<b>Credits:</b>	180 ECTS
<b>Approval</b>	The program Study Plan was approved by the Faculty Board of Health, Science and Technology on 21 September 2017 and is valid from the autumn semester of Year 2018 at Karlstad University, Rev. 1 Dec. 2022.
<b>Language of Instruction</b>	Swedish and english
<b>Degree Level</b>	Bachelor
<b>Degree Type</b>	Degree of Bachelor of Science in Engineering Professional degree
<b>Prerequisites</b>	General admission requirements and Physics 2, Chemistry 1 level Mathematics 3c/Mathematics D

#### Introduction

Mechanical Engineering is a broad subject area with applications in practically all fields where apparatuses and machinery are used. This study programme in mechanical engineering aims at providing qualifications for working with machine design, manufacturing and maintenance engineering.

The generic subjects included in mechanical engineering are mechanics, materials engineering, and mechanics of materials. These subjects are studied separately to start

with but are also essential parts of the applied studies such as machine design, manufacturing engineering, production engineering and maintenance engineering.

The engineering programme in mechanical engineering should qualify for a professional degree and be based on science and accepted experience. The programme courses have many elements of application and laboratory experiment. Fundamental theories and areas of relevance and application are tested and reinforced by test set-ups, handling measuring tools, and interpreting, reflecting on, discussing and presenting the result of experiments and studies. Within the applied courses, project tasks close to industrial reality are important parts.

### **Objectives**

Upon completion of the programme students should, beyond the general requirements for a Bachelor's degree specified in the *Higher Education Ordinance, SFS 2006:1053*, be able to:

- design mechanical components and products, motivating the choice of solution with regard to materials, manufacturing, form, economy and the environment,
- design mechanical constructions, motivating the choice of solution with reference to relevant calculations, standards and norms,
- read and produce documentation describing mechanical constructions and components in accordance with international praxis and using modern methods and tools,
- use modern methods of planning, operating and maintaining production systems with regard to quality, the environment and economy,
- plan, organise, and participate in projects.

### **Programme Structure**

In the first year students study basic courses in mechanical engineering, including the generic subjects mechanics, solid mechanics and materials engineering, and in addition, mathematics. During the second year will the courses gradually change towards more applied subjects with substantial elements of laboratory work and project tasks. The third year ends up with two courses containing larger project tasks in connection with the industry; Integrated Product Development and Production Systems 2.

A degree project concludes the study programme.

### **Programme Curriculum**

Courses within mechanical engineering as mechanics, solid mechanics, material technology, machine design/product development, manufacturing, production systems and courses within science 135 ECTS credits.

Mathematics 22,5 ECTS credits.

Thesis work 22,5 ECTS credits

### **Degree Title**

Degree of Bachelor of Science in Engineering - Mechanical Engineering

Students who meet the requirements for a degree may request a degree certificate to be issued by the university. Requests should be submitted to the Office for Student Services

### **Credit Transfer**

According to the *"Higher Education Ordinance (Ch. 6 ½ 12-14)*, students may transfer credits from previously completed university courses subject to approval.

### **Additional information**

The local regulations for first and second cycle education at Karlstad University stipulate the obligations and rights of students and staff.