



Faculty of Health, Science and Technology  
Mechanical Engineering

# Syllabus

## Sustainable Product Development for Industrial Engineering

<b>Course Code:</b>	MSAD20
<b>Course Title:</b>	Sustainable Product Development for Industrial Engineering <i>Hållbar produktutveckling för industriell ekonomi</i>
<b>Credits:</b>	7.5
<b>Degree Level:</b>	Master's level
<b>Progressive Specialisation:</b>	Second cycle, has only first-cycle course/s as entry requirements (A1N)

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

### Course Approval

The syllabus was approved by the Faculty of Health, Science and Technology 2021-02-17, and is valid from the Autumn semester 2021 at Karlstad University.

### Prerequisites

### Learning Outcomes

The aim of the course is for students to acquire knowledge of industrial product development, with an holistic approach to the product development process.

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

Product development

- give an account of the the product development process from need to abolition,

- give an account of and reflect on the different roles and interactions in a project group,
- use structured methods and tools to plan, organise, and conduct a product development project,
- present their results to a client, orally and in writing, and justify their choices of solutions,
- give an account of and reflect on a coherent product development process, including interconnected choices of designs, materials, and manufacturing methods

#### Sustainable development

- give an account of the concept of sustainable development based on different definitions and ecological, social, and economic dimensions,
- explain the problem of resources based on definitions, conditions, and distribution, and
- give an account of selected examples of current research in the area of sustainable development.

### **Content**

The course covers techniques, methods, approaches, and workplace organisation for increased efficiency and learning in product development, with a focus on sustainability issues.

The course includes theoretical components on product development and sustainable development in the form of lectures, exercises, and seminars. Students also complete a case study in the form of a group project.

### **Reading List**

See separate document.

### **Examination**

Assessment is based on:

Product development: A written quiz, mandatory supervision sessions, hand-in assignments, an oral presentation, a project report, and an individual written reflection.

Sustainable development: A mandatory hand-in assignment and a mandatory seminar.

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 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.