Reg No: MSGC36/20252

Faculty of Health, Science and Technology
Mechanical Engineering

Syllabus

Degree Project for Bachelor of Science in Innovation and Design Engineering

Course Code:	MSGC36
Course Title:	Degree Project for Bachelor of Science in Innovation and Design Engineering *Examensarbete för högskoleingenjörsexamen i innovationsteknik och design*
Credits:	22.5
Degree Level:	Undergraduate level
Progressive Specialisation:	First cycle, has at least 60 credits in first-cycle course/s as entry requirements, contains degree proj. for B.A./B.Sc. (G2E)

Major Field of Study:
MTA (Mechanical Engineering)

Course Approval
The syllabus was approved by the Faculty of Health, Science and Technology 2025-03-03, and is valid from the Autumn semester 2025 at Karlstad University.

Prerequisites
105 ECTS credits of programme courses completed before the course begins, with 15 ECTS credits in Mathematics and 60 ECTS credits in Mechanical Engineering, including 15 ECTS credits in Innovation and Design Engineering, or equivalent

Learning Outcomes
The aim of the course is for students to:
- apply the work method of an engineer and industrial designer in a product development project, or a product and service development project, and

- complete an independent project, present it orally and in writing, and critically review the work of others.

For a Bachelor of Science degree, students have to demonstrate the knowledge and skills required to work independently as an engineer.

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

Knowledge and understanding
- demonstrate knowledge of the scientific basis and proven experience of the chosen area of technology, and insight into current research and development efforts, and
- demonstrate broad knowledge of the chosen area of technology and relevant knowledge of mathematics and science.

Competence and skills
- demonstrate the ability to apply a holistic view to identify, formulate, and handle research questions independently and creatively, as well as analyse and evaluate different technical solutions,
- demonstrate the ability to plan and carry out tasks with adequate methods and within given limits,
- demonstrate the ability to use knowledge critically and systematically as well as model, simulate, predict, and evaluate events based on relevant information,
- demonstrate the ability to design and handle products, processes, and systems, taking into account people's situations and needs as well as societal objectives for economic, social, and ecological sustainable development,
- demonstrate the ability to work in teams and collaborate in different types of groups, and
- demonstrate the ability to present and discuss information, problems, and solutions, both orally and in writing, and in dialogue with different groups.

Judgement and approach
- demonstrate the ability to make assessments based on relevant scientific, societal, and ethical aspects,
- demonstrate insight into the possibilities and limitations of technology, its role in society, and people's responsibility for its use, including social, economic, environmental, and working environment aspects, and
- demonstrate the ability to identify their own need for further knowledge and skills training.

Content
The course comprises a project, completed either individually or in groups of two students if the examiner allows it, and supervision is provided by teachers at the university. When two students collaborate on a more substantial project, the initial project plan must clearly indicate individual contributions and responsibilities. The degree project provides students with an opportunity to acquire in-depth knowledge of the field.

Reading List
See separate document.

Examination
Assessment is based on documentation of the project in the form of a written report, normally written in Swedish with a summary in English, or in English with a title and summary in Swedish if the examiner allows it.

Other mandatory components examined in the course include hand-in assignments, seminars, oral presentations, and peer review of another student's work.

The number of assessment opportunities is limited to five, but for each specific project the maximum is one examination and two retake examinations over one year after the start of the course, unless the examiner decides otherwise.

When students work in pairs, assessment is based on a joint report clearly outlining the division of labour, individual oral presentations, and individual peer review.

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.