



Faculty of Health, Science and Technology
Materials Engineering

Syllabus

Project work on simulation and modelling

Course Code:	MTAD14
Course Title:	Project work on simulation and modelling <i>Projektarbete kring simulering och modellering</i>
Credits:	7.5
Degree Level:	Master's level
Progressive Specialisation:	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 2023-03-17, and is valid from the Autumn semester 2023 at Karlstad University.

Prerequisites

Finite Element Methods, 7.5 ECTS credits, Solid Mechanics 1, 7.5 ECTS credits, Solid Mechanics 2, 7.5 ECTS credits, and registered for Simulation and Modelling, 7.5 ECTS credits, plus upper secondary level English 6, or equivalent

Learning Outcomes

The purpose of the course is for students to use a combination of experimental methods and modern simulation technology, for example FEM, in order to:

- practice a scientific approach, with critical evaluation, analysis, and synthesis
- apply a proper engineering approach to distinguishing, formulating, and solving problems with technical relevance
- conduct an independent project and present it orally and in writing.

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

- identify, formulate, and delimit problems and apply experimental methodology meeting the requirements of scientific procedure
- apply modern simulation method
- plan their work and establish partial objectives
- analyse and evaluate their own simulations and experimental data
- present the project in a written report meeting the requirements of scientific and technical standards in terms of content, structure, and language
- give oral presentations keeping within a given time-limit and meeting the requirements of clarity in relation to language, presentation, and illustrations.

Content

The course work is completed in the form of a project, either individually or in groups. If a group of students collaborate on a larger project, the individual contribution and area of responsibility must be made explicit when the project begins as well as when it is reported and presented.

Reading List

See separate document.

Examination

Assessment is based on a written report and a final seminar with oral presentation.

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 (Distinction), 4 (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.