MF2521 Advanced Machine Design Project, Part 1 6.0 credits

Avancerat maskinkonstruktionsprojekt, del 1

This is a translation of the Swedish, legally binding, course syllabus.

Establishment

The official course syllabus is valid from the spring semester 2026, according to the decision by the Faculty Board: M-2024-0018. Date of decision: 2024-10-14.

Grading scale

A, B, C, D, E, FX, F

Education cycle

Second cycle

Main field of study

Mechanical Engineering

Specific prerequisites

Bachelor of Science, subject area mechanical engineering or equivalent.

The courses MF2511 Machine Design: Fundamentals, MF2010 Component Design and MF2068 Machine Dynamics or the equivalent.

Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

Intended learning outcomes

After passing the course, the student should be able to:

1. Plan and participate at development of both integrated and modularised mechanical products

2. Carry out the early phases of the product development process from specification and concept generation to prototyping, based on a systematic approach. Design and detail both components and subsystems of mechanical products from concepts to manufacturing documentation and prototypes.

3. Apply principles of ecofriendly design and reflect on environmental consequences of for example choice of concept and design.

4. Include perspectives of gender equality, diversity and equal opportunities, when developing mechanical products.

Course contents

The course is project-based and focuses on the early phases of the product development process. It involves teamwork focusing on a defined project and planning for and also carrying out conceptualisation and evaluation for it. The course is an applied course, which the implies that previously acquired knowledge from areas such as mechanics, solid mechanics, electrical engineering, product development and design is applied in the work with the current project.

The course includes the early phases of the design process, which implies that the following activities are commonly occurring in the project work.

- Project-based working methods, including project management and follow-up of project plans.
- Development of specification, concept generation and evaluation of concepts.
- Application of a systematic model-based development process in the analysis, simulation and verification of machine concepts.
- Application of principles of ecofriendly design and reflection on environmental consequences of for example choice of concept and design.

Examination

- PRO1 - Project assignment, 6.0 credits, grading scale: A, B, C, D, E, FX, F

Based on recommendation from KTH's coordinator for disabilities, the examiner will decide how to adapt an examination for students with documented disability.

The examiner may apply another examination format when re-examining individual students.

If the course is discontinued, students may request to be examined during the following two academic years.

Other requirements for final grade

Requirement of at least 90% attendance at scheduled parts of the course.

The project tasks to be presented are compulsory.

Ethical approach

- All members of a group are responsible for the group's work.
- In any assessment, every student shall honestly disclose any help received and sources used.
- In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution.