



MF1001 Mechanical Engineering, introductory course 9.0 credits

Maskinteknik, introduktionskurs

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

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

Establishment

Course syllabus for MF1001 valid from Autumn 2019

Grading scale

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

Education cycle

First cycle

Main field of study

Technology

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 students should be able to:

- Define (and for higher grades, explain) a number of concepts that occur in the field of mechanical engineering, such as force, moment, equilibrium, free body diagrams, strain, stress, elasticity, energy, heat, effect, work, laminar flow, turbulence, production and gear ratios.
- Carry out simple calculations in mechanical engineering, such as for example simple force analyses, strength analyses, heat release, energy need and effect output.
- Independently and in a structured way use CAD software to create parametrised part models, assembly models, mechanism models, dimensioned detail drawings and assembly drawings with exploded views.
- Plan and organise a small product development project, make a project plan divide tasks in a project group. Reflect on group dynamics and roles in a group.
- In project group write and compile an uniformly written report, create presentation material and carry out an oral presentation.
- Discuss and reflect on gender equality, equality and diversity in a perspective relevant for students and professionals.
- Discuss sustainable development in a few technical areas, from an introductory perspective.
- Discuss technology and the professional engineering role.

Course contents

The course is an introduction to the subject of mechanical engineering and to the Mechanical Engineering education programme at KTH. The course gives a foundation and tools to carry out the degree programme in a good way, and contains topic-specific intended learning outcomes, trains complementary skills and conveys knowledge and abilities related to study technique and the programme.

Disposition

The course is divided into four parts, aligning the intended learning outcomes with the activities and the examination in each of the parts.

Part 1: Introduction to Mechanical Engineering: Gives an overview of the mechanical engineering field. Learning activities are primarily lectures and literature studies throughout the course. Topics include basic mechanical engineering systems and components and basic concepts and relations in mechanics, solid mechanics, machine elements, flow, energy engineering and production engineering.
Examination is a written exam.

Part 2: Introductory CAD: In this course module, students learn how to use a CAD system to document and present a design in the form of drawings, three-dimensional models, and animations. The course module activities and examination consist of compulsory computer exercises and a homework assignment.

Part 3: Sustainable development: Sustainable development is introduced holistically in a way that is adapted for engineering students. The module includes basic knowledge of the field, and an opportunity to reflect upon and discuss sustainability issues that are central for engineers.

Part 4: Study techniques, project methodology and the engineering role: Introduction to engineering programme study techniques and to the professional engineering role. Knowledge and abilities in gender equality, diversity and equality. Group dynamics, cooperation, creativity and imagination. Oral and written presentation. Examination consists of oral and written presentations, and compulsory attendance at seminars. Course module link all course's intended learning outcomes and other modules by for example oral and written request is carried out on contents related to intended learning outcomes in other parts above.

Specific prerequisites

General entry requirements for studies at university college and the specific entry requirements for Mechanical engineering studies at KTH.

Course literature

Information about the course literature will be announced in the course memo.

Examination

- INL1 - Assignment, 1.5 credits, grading scale: P, F
- LAB2 - Laboratory work, 1.5 credits, grading scale: A, B, C, D, E, FX, F
- PRO1 - Project, study visit, 1.0 credits, grading scale: P, F
- TEN1 - Written exam, 5.0 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.

The examiner decides, in consultation with KTH's coordinator for disabilities (Funka), about possible adapted examination for students with documented, permanent disabilities. The examiner may permit other examination format for re-examination of individual students.

Other requirements for final grade

For final grade, attendance at compulsory components is required.

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.