



# SD1001 Vehicle Engineering 9.0 credits

## Farkostteknik

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 SD1001 valid from Autumn 2019

## Grading scale

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

## Education cycle

First cycle

## Main field of study

Technology

## Specific prerequisites

## Language of instruction

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

# Intended learning outcomes

The aim of the first-year introductory engineering course is to prepare students for their studies in the Vehicle Engineering programme: to give a broad overview of vehicle engineering and applied mechanics, to initiate early contacts between students and faculty, to provide early hands-on engineering experience including teamwork, oral and written communication, and computational and visualisation tools.

Students graduating from the course shall be able to:

- explain and communicate the main principles of design, function and operation of vehicles
- discuss the prerequisites for vehicles and transportation systems in a socially, environmentally and economically sustainable society
- identify and discuss the central role of mechanics in the analysis, design and development of vehicles
- describe and discuss how vehicles, their features and performance are modeled by numerical analysis based on mechanics, linear algebra and calculus
- investigate a mechanical model experimentally and numerically
- explain and communicate the main ideas within the theory of science, history of technology and the development of infrastructure
- plan and implement projects in a group
- document and present their work orally and in writing
- identify and discuss professional ethics issues
- reflect upon their own learning and identify the need for further knowledge, take responsibility for their personal development to an engineer.

# Course contents

Introduction to Vehicle Engineering in a broad perspective with links to the society and current developments. The types of vehicles, their principles of design, function and operation. Scientific areas important for the design, function and operation of vehicles, e.g. mechanics of solids and fluids, sound and vibration, vehicle dynamics, systems engineering. Examples of models and methods for analysis of the function and performance of vehicles. Theory of science and basic ethics. The role of technology and engineers in society: development of the infrastructure, vehicles and transport systems in a socially, environmentally and economically sustainable society, ethical aspects. Technical communication: information retrieval, oral and written presentation and the use of pictures, drawings and graphs. Basic knowledge of project work: project planning and teamwork.

# Examination

- PRO1 - Project Assignment 1, 1.0 credits, grading scale: P, F
- PRO2 - Project Assignment 2, 2.0 credits, grading scale: P, F
- ÖVN1 - Exercises, 1.0 credits, grading scale: P, F
- ÖVN2 - Exercises, 3.0 credits, grading scale: P, F

- ÖVN3 - Exercises, 2.0 credits, grading scale: P, 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.

## **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.