



# MF202U Internal Combustion Engines, Basic Course /Commissioned Course/ 6.0 credits

Förbränningsmotorteknik, grundkurs /Uppdragsutbildning/

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

## Establishment

Course syllabus for MF202U valid from Spring 2013

## Grading scale

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

## Education cycle

Second cycle

## Main field of study

## Specific prerequisites

## Language of instruction

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

# Intended learning outcomes

To provide a good basis for the development, production and application of internal combustion engines.

- General orientation about the combustion engine characteristics
- Introduction to key engine components
- Knowledge of motors thermodynamics and combustion
- Knowledge of exhaust emissions from diesel and spark ignited engines, and how these are reduced
- Knowledge of the internal combustion engine's and its fuel's role in the transport system and their impact on the environment

## Course contents

Repetition and practice of basic thermodynamics applied to internal combustion engines. Frequent idealized processes/cycles, turbocharging and intercooling are included.

Fundamentals for diesel and spark ignited combustion are treated in the lectures. In this context is also addressed alternative fuels, their basic chemistry and emission formation. Future fuel scenarios are treated, as well as the overall situation of energy for transportation.

Laboratory work is given where both diesel and spark ignited engines are tested, and performance and emissions are measured. The diesel engine exercise is reported with a thermodynamic analysis, where turbocharger efficiency is calculated from measured data.

Ignition and fuel treatment.

## Course literature

Anges vid kursstart.

## Examination

- INL2 - Hand in Tasks, 4.0 credits, grading scale: P, F
- LAB1 - Laboratories, 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.

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

Grading pass/fail.

## Other requirements for final grade

Assignments, 4 hp

Laboratory exercises, 2 hp

## 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.