MF2064 Internal Combustion Engines Advanced Course 15.0 credits

Förbränningsmotorteknik högre kurs

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

Establishment

Course syllabus for MF2064 valid from Spring 2013

Grading scale

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

Education cycle

Second cycle

Main field of study

Mechanical Engineering

Specific prerequisites

Students should be part of the Combustion Engineering Track, and/or have MF2016 (4F1431).

Language of instruction

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

Intended learning outcomes

Student should:

• apply knowledge and skills from previous courses

• be able to gain knowledge in the field through the open literature

• have a good understanding of the methods used during project work, ie simulation and / or experimental methods, depending on the nature of the project

•identify, analyze, compare and critically evaluate aspects of a technical problem, take the decisions necessary to achieve the objectives of the project

• developthe skillstouse the toolsrequired to completethe project, ie simulation tools and / or experimental equipment depending on the nature of the project

• learn from theexperience of workingas a teamto achieve common goals

• and have an understanding of group dynamics, leadership and project dynamics

Course contents

The Combustion Engines advanced course aims to provide students with the skills needed to work effectively in industrial development projects and innovative product development. In this course, students work together on an industrial-related development project, collaborating closely with industrial partners to maximise the relevance of the project and take advantage of the latest developments in internal combustion engine technology.

Disposition

The advanced course practices the application of new knowledge in combustion engines and other applicable KTH threads through project work.

The problem is chosen in consultation with the examiners, with the result that students work in teams on a number of different projects.

The problem must be relevant in the sense that it is stimulating for the student, as well as interesting enough for industry that they are prepared to pay for the necessary experimental equipment, and participate in the final public presentation.

The project supervisor can be the examiner, the Department's graduate students and the staff and laboratory personnel. The Department's well-equipped workshop is an excellent resource where it is possible to develop new experimental equipment. In some cases, the industrial partner also contributes with mentoring support and test equipment.

Softwarelicences for modern simulation programs are provided for those projects with a simulation approach.

Course literature

Bosch Automotive Handbook

Heywood. Internal Combustion Engine Fundamentals. McGraw-Hill

Examination

- PRO2 - Project Work, 12.0 credits, grading scale: A, B, C, D, E, FX, F
- PRO1 - Project Work, 3.0 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.

PRO1 - Project, written report, 3.0 credits, grade scale:A-F

PRO2 - Project,written report andoral presentation,12.0 credits, grade scale:A-F

Other requirements for final grade

To pass this course requires approved assignments (PRO1; 4,5hp) and (PRO2; 12,0 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.