SG1216 Thermodynamics 6.0 credits

Termodynamik

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

Establishment

Course syllabus for SG1216 valid from Autumn 2008

Grading scale

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

Education cycle

First cycle

Main field of study

Technology

Specific prerequisites

Course participants are assumed to have successfully completed their first year of studies in Vehicle Engineering as well as the course SG1217 Fluid Mechanics.

Language of instruction

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

Intended learning outcomes

To introduce fundamental concepts and phenomena in thermodynamics with compressible flow. The course provides a foundation for further studies in the third and fourth years of the degree programme.

Course contents

The first and Second Laws of Thermodynamics together with the concepts; inner energy, work, heat transfer, enthalpy, entropy, and exergy. The three phases of matter. Ideal gases. Compressible flow through nozzles. Shock waves.

Practical

An obligatory practical exercise with a heat engine is carried out by students in groups of four.

Project

Students are required to carry out a project based on the practical exercise. As an essential part of their projects students are expected to participate actively in the tutorials.

Course literature

Young & Freedman, ”University Physics”

Nakayama & Boucher, “Introduction to Fluid Mechanics”, Butterworth-Heineman, 1999.

Lecture notes

Examination

- INLA - Assignments, 1.5 credits, grading scale: P, F
- INLB - Assignments, 1.5 credits, grading scale: P, F
- TEN1 - Examination, 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.

Other requirements for final grade

Homework (1,5 university credits.).
Practical and project (1,5 university credits.).
Written examination (3 university credits.).

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.