SG2219 Advanced Compressible Flows 7.5 credits

Kompressibel strömning, avancerad kurs

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

Establishment

Course syllabus for SG2219 valid from Autumn 2007

Grading scale

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

Education cycle

Second cycle

Main field of study

Specific prerequisites

The course is suitable for F, M and T-students in the fourth year with interest in fluid dynamics and aerodynamics as well as for students in e.g. the international masters program in engineering mechanics. The course is given during period 3 and 4. The course SG2215 Compressible flow or equivalent is a prerequisite and also some knowledge about turbulence, such as SG2218 Turbulence, is useful.

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 course is to give the students:

a) an overview of the subject

b) a description of tools for, and modelling of turbulent flows

c) a discussion of newer developments in turbulence research.

Course contents

The course mainly deals with the following four topics:

- Laminar and turbulent compressible boundary layers (including stability)
- Propagation of shock waves
- Detonation and deflagration waves
- Thermodynamics for hypersonic applications

Each part is covered in about 12h lectures/seminars. Parts of the course are closely related to research projects at KTH Mechanics.

Course literature

Material distributed during the course.

Examination

- SEM1 - Seminars, 1.5 credits, grading scale: P, F
- SEM2 - Seminars, 1.5 credits, grading scale: P, F
- TEN1 - Examination, 4.5 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

Seminars (1,5 +1,5 university credits) and oral exam (4,5 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.