SD2806 Transonic and supersonic aircraft aerodynamics 6.0 credits

Flygaerodynamik vid transonisk och supersonisk strömning

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

Establishment

The course syllabus is valid from Spring 2022 according to the school principal's decision: S-2022-0529 Decision date: 2022-02-24

Grading scale

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

Education cycle

Second cycle

Main field of study

Mechanical Engineering

Specific prerequisites

Completed degree project on Bachelor level with major in technology.

English B / English 6

Language of instruction

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

Intended learning outcomes

The objectives of the taught part of the course are that a student, upon completion of the course, should be able to:

- Describe the parameters of the aircraft configuration required for transonic and supersonic flight
- Describe, define, and explain the fundamental concepts of aerodynamics applied to flight at transonic and supersonic speeds
- Describe, define, and explain the fundamental concepts of aircraft performance and flight mechanics for an aircraft in transonic and supersonic flight
- Evaluate and correlate in a cohesive manner the fundamental concepts
- Solve simple aerodynamics, performance, and flight mechanics problems
- Apply taught theory and concepts for the analysis of open-ended engineering and/or research questions

Course contents

The course focuses on the aspects of aircraft at transonic and supersonic flight regimes. The topics will cover aspects of aircraft aerodynamics and performance, as well as basic aircraft design parameters.

Examination

- TEN1 - Written exam, 3.0 credits, grading scale: A, B, C, D, E, FX, F
- PRO1 - Project, 3.0 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.

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.