



# SD2601 Fundamentals of Flight

## 7.5 credits

### Flygteknik

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

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

### Establishment

Course syllabus for SD2601 valid from Autumn 2010

### Grading scale

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

### Education cycle

Second cycle

### Main field of study

### Specific prerequisites

The course is primarily intended for students in the Aerospace Engineering program (including exchange students). For as long as room is available, other students are also welcome to participate.

### Language of instruction

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

## Intended learning outcomes

The **overall objectives** of the course are that you should be able to

- **explain** what influence the geometric shape and the aerodynamic characteristics of the aeroplane as well as the engine performance and flight altitude have on the aeroplane performance,
- **calculate** the performance of an aeroplane, mainly for non-accelerating flight states, but also in some simple accelerating cases such as take-off, landing and horizontal turn, and,
- **calculate** the aerodynamic and engine data that is needed to perform a performance analysis.

## Course contents

The aeroplane, its design and the function of different parts with an emphasis on aspects concerned with aeroplane performance. Properties of the atmosphere. Basic aerodynamic concepts. Classical aerodynamic methods, mainly based on potential theory. Different engine types and the most important characteristics, in particular those having an influence on the aeroplane performance. The max. and min. speed of flight and how it depends on the altitude. The flight envelope. Calculation of flight range and endurance, rate and time of climb and ceilings. Take-off and landing, and horizontal turn.

## Course literature

E.Torenbeek, H. Wittenberg, Flight Physics, Springer, 2009.

Written hand-outs from the Department.

## Examination

- INL1 - Assignment, 3.0 credits, grading scale: P, F
- PRO1 - Project, 1.5 credits, grading scale: P, F
- TEN1 - Examination, 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.

## Other requirements for final grade

Hand-in assignments (INL1; 3 university credits)  
Project (PRO1; 1.5 university credits)  
Written exam (TEN1; 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.