

# Aerodynamics

Programme course

6 credits

Aerodynamik

TMMV01

Valid from: 2017 Spring semester

**Determined by**  
Board of Studies for Mechanical  
Engineering and Design

**Date determined**  
2017-01-25

## Main field of study

Mechanical Engineering

## Course level

Second cycle

## Advancement level

A1X

## Course offered for

- Aeronautical Engineering, Master's Programme
- Mechanical Engineering, M Sc in Engineering
- Design and Product Development
- Industrial Engineering and Management - International, M Sc in Engineering
- Industrial Engineering and Management, M Sc in Engineering
- Applied Physics and Electrical Engineering, M Sc in Engineering
- Mechanical Engineering, Master's programme
- Applied Physics and Electrical Engineering - International, M Sc in Engineering
- Energy-Environment-Management

## Entry requirements

Note: Admission requirements for non-programme students usually also include admission requirements for the programme and threshold requirements for progression within the programme, or corresponding.

## Prerequisites

Analysis, Algebra, Physics (thermodynamics) and Mechanics and Fluid mechanics.

## Intended learning outcomes

After the course the student must be able to explain common aerodynamic concepts and phenomenon, and how fundamental parameters like lift and drag are affected by geometry and flow conditions. Also, the student must be able to model and analyze different aerodynamic flow problems, and explain measurement of pressure and velocity for aerodynamic applications.

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### Course content

Introduction, basic equations, flow about a body, aerodynamic characteristics of airfoils, viscous and inviscid flow, boundary layers, incompressible and compressible flow.

### Teaching and working methods

The course consists of lectures, laboratory exercise, and project work.

### Examination

TEN2	Written examination	3.5 credits	U, 3, 4, 5
UPG5	Project work	1.5 credits	U, G
LAB4	Laboration course	1 credits	U, G

### Grades

Four-grade scale, LiU, U, 3, 4, 5

### Other information

Supplementary courses: Aerodynamics (advanced course), Computational fluid mechanics, Computational fluid mechanics (advanced course), project course.

### Department

Institutionen för ekonomisk och industriell utveckling

### Director of Studies or equivalent

Johan Renner

### Examiner

Roland Gårdhagen

### Course website and other links

<http://www.iei.liu.se/mvs/utbildning/avancerade-kurser/tmmv01?sc=true&l=en>

### Education components

Preliminary scheduled hours: 44 h

Recommended self-study hours: 116 h

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## Course literature

### Additional literature

#### Books

John J. Bertin och Russell M. Cummings, *Aerodynamics for Engineers* 5

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## Common rules

Regulations (apply to LiU in its entirety)

The university is a government agency whose operations are regulated by legislation and ordinances, which include the Higher Education Act and the Higher Education Ordinance. In addition to legislation and ordinances, operations are subject to several policy documents. The Linköping University rule book collects currently valid decisions of a regulatory nature taken by the university board, the vice-chancellor and faculty/department boards.

LiU's rule book for education at first-cycle and second-cycle levels is available at [http://stydokument.liu.se/Regelsamling/Innehall/Utbildning\\_pa\\_grund-\\_och\\_avancerad\\_niva](http://stydokument.liu.se/Regelsamling/Innehall/Utbildning_pa_grund-_och_avancerad_niva).