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.

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

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

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

Course literature

Additional literature

Books

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

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://styrdokument.liu.se/Regelsamling/Innehall/Utbildning_pa_grund-_och_avancerad_niva.