

t.AERO - Aerodynamics

Person responsible for the course:	Leonardo Manfredini, mani
Responsible OU:	ZAV
ECTS:	4
Valid for:	2012/2013
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Expertise:

Understand and be able to apply basic aerodynamic concepts

Methodological skills:

Apply simple theoretical methods to calculate aircraft aerodynamic characteristics

Social skills:

Be able to work and learn effectively in a small group

Personal skills:

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Learning objectives:

The main objectives of this course are the following :

- the students understand and can apply the fundamental principles of aircraft aerodynamics;
 - at the same time, interested students receive basic knowledge for the ATP theoretical examination "Aircraft General Knowledge" according to JAR-FCL 1.470.
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Course content:

Fundamental aircraft aerodynamic concepts:

- airspeed measurement
- aerodynamic forces: lift and drag
- inviscid and viscous flow; boundary layers
- characteristics of wing sections
- wings: induced drag
- high lift devices
- flow separation on a wing; stall characteristics
- transonic and supersonic flow; shock waves and wave drag

The following JAR-FCL 1.470 topics are integrated in the AEFM course:

- 080 00 PRINCIPLES OF FLIGHT
- 081 01 Subsonic aerodynamics
- 081 02 Transonic aerodynamics
- 081 03 Supersonic aerodynamics

Previous knowledge:

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Teaching method:

Type of lesson:	Number of lessons per week:
Lecture	14*2
Tutorial/Practicum	14*2
Block instruction	

Assessment:

According to the table or as specified in writing by the lecture at the beginning of the semester!

description	type	form	scope	assessment	weighting
Performance records during school hours	Lab reports	written	2 x 90 min.		2 x 20%
Semester end exam	Test	written	90 min.		60%

Language of instruction:

English

Instruction material:

Textbook: John D. Anderson, Jr.: Introduction to Flight, McGraw-Hill

The textbook will be complemented by copies of the presentation slides, script and exercises.

Additional literature:

- Hugh H. Hurt, Aerodynamics for Naval Aviators, U.S. Navy
- Bertin and Cummings, Aerodynamics for Engineers, Pearson
- Houghton and Carpenter, Aerodynamics for Engineering Students, Elsevier
- Principles of Flight, Nordin ATS

The NORDIAN book is recommended for those students who intend to take the ATP theoretical knowledge examination.

Comments:

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