

t.FLSY1 - Aircraft Systems 1

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Credits: 3
Valid for: 2010/2011
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Learning objectives:

The objectives of the dual course "Aircraft Systems" are the following :

- the students are able to identify the various components and subsystems of the system "aircraft";
 - they understand and can explain their design principles, function and interaction;
 - at the same time, interested students also receive basic knowledge for the ATP theoretical examinations "Aircraft General Knowledge" and "Principles of flight" according to JAR-FCL 1.470.
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Course content:

The structure and systems of a modern aircraft are explained on the basis of practical examples (business turboprop aircraft, large jet transport aircraft). Particular attention is given to basic technical principles, design and the interaction between the various components and systems of an aircraft.

The course provides a basic understanding of design methods, technologies, performance and certification requirements and maintenance concepts. It will be shown how every aircraft is the result of compromises between efficiency, safety, comfort, economy and environmental impact.

This course is in two parts: the first part (FLSY1) deals with the general design and the structure of the aircraft, propulsion and mechanical systems; the second part (FLSY2) concerns electrical systems, instruments, avionics and on-board software.

Selected topics are treated in more detail in the courses TMS (Technische Mechanik und Statik, fourth Semester) and MRO (Maintenance, Repair & Overhaul, fifth Semester).

The following JAR-FCL 1.470 topics are integrated in the FLSY1 course:

021 00 AIRCRAFT GENERAL KNOWLEDGE
021 01 System design, loads, stresses, maintenance
021 01 Airframe and systems
021 03 Powerplant
080 00 PRINCIPLES OF FLIGHT
081 06 Limitations
081 07 Propellers

Previous knowledge:

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Teaching method:

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

Assessment:

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

Number	Type	Weighting
1	Final exam	60%
4	Short tests during the semester	40%
	Further assessments	

Language of instruction:

English

Instruction material:

Lecture notes and presentation slides.

Complementary literature:

- Darrol Stinton, The Anatomy of the Airplane, AIAA Library of Flight Series
- Ian Moir, Allan Seabridge, Design and Development of Aircraft Systems, AIAA Education Series
- Ian Moir, Allan Seabridge, Aircraft Systems - Mechanical, Electrical and Avionics Subsystem Integration, AIAA Education Series
- Klaus Engmann, Technologie des Flugzeuges, Leuchtturm-Verlag
- The Jet Engine, Rolls Royce plc
- Airframes & Systems, Nordian ATS
- Powerplant, Nordian ATS

The titles from the NORDIAN Aviation Training System series are recommended for those students who intend to take the ATP theoretical knowledge examinations.

Comments:

The course is obligatory for candidates to the ATP licence. Attendance to the course will correspondingly be checked.