



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Flight rules

Course

Field of study

Aviation

Area of study (specialization)

Flight Training For Civil Aviation

Level of study

First-cycle studies

Form of study

full-time

Year/Semester

2/3

Profile of study

general academic

Course offered in

polish

Requirements

compulsory

Number of hours

Lecture

30

Laboratory classes

Other (e.g. online)

Tutorials

Projects/seminars

Number of credit points

1

Lecturers

Responsible for the course/lecturer:

Maciej Smólski

Responsible for the course/lecturer:

Wydział Inżynierii Środowiska i Energetyki

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Prerequisites

The student starting this subject should have basic knowledge of aircraft control. He should also have the ability to apply the scientific method in solving problems and be ready to cooperate within a team.

Course objective

To acquaint the student with the operation of airplane control systems.

Course-related learning outcomes

Knowledge

1. has detailed knowledge related to selected issues in the field of navigation, flight mechanics and piloting techniques, the use of simulators, flight rules, its preparation, and related operating procedures
2. has a basic knowledge of the mechanisms and laws governing human behavior and psyche



Skills

1. can solve tasks using basic knowledge of aerodynamics, flight mechanics and body flow

Social competences

1. correctly identifies and resolves dilemmas related to the profession of an aerospace engineer

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Lecture:

- assessment of knowledge and skills demonstrated on the written test - 1.5 hour

Programme content

Lecture:

semester 3:

Subsonic aerodynamics: basic, laws and definitions. Basics of airflow. Aerodynamic forces on aerofoils. Shape of an aerofoil section. Wing shape. The lift coefficient (CL) - angle of attack (α) graph. Two-dimensional airflow around an aerofoil. The lift coefficient (CL) and drag. Three-dimensional airflow around an aeroplane. Ground effect.

semester 4:

The relationship between lift coefficient and speed in steady, straight, and level flight. High-speed aerodynamics: speed, shock waves, effects of exceeding the critical Mach number (MCRIT), means to influence critical Mach number (MCRIT). The stall, the spin. Static and dynamic stability. Control. Operating limitations. Propellers. Flight mechanics

Teaching methods

1. Lecture: multimedia presentation, illustrated with examples given on the board.

Bibliography

Basic

1. "Principles of Flight" (JAR Ref 080). JAA ATPL Training. Germany 2004
2. „Podstawy Aerodynamiki i Mechaniki Lotu". Abłamowicz A., Nowakowski W., Wydawnictwo Komunikacji i Łączności, Warszawa 1980



3. „Praktyczna aerodynamika i mechanika lotu samolotu odrzutowego, w tym wysokomanewrowego”, Milkiewicz A.. Wydawnictwo ITWL, Warszawa 2009
4. „Podstawy eksploatacji statków powietrznych”, Lewitowicz J., Wydawnictwo Instytutu Technicznego Wojsk Lotniczych, Warszawa 2001

Additional

Breakdown of average student's workload

	Hours	ECTS
Total workload	28	1,0
Classes requiring direct contact with the teacher	22	0,7
Student's own work (literature studies, preparation for exercises, preparation for colloquium, preparation for passing) ¹	6	0,2

¹ delete or add other activities as appropriate