



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Flying technique 2 [S1Lot2-PSPL>TPiSL2]

Course

Field of study

Aviation

Year/Semester

2/4

Area of study (specialization)

Aircraft Piloting

Profile of study

general academic

Level of study

first-cycle

Course offered in

Polish

Form of study

full-time

Requirements

elective

Number of hours

Lecture

0

Laboratory classes

0

Other

0

Tutorials

15

Projects/seminars

0

Number of credit points

1,00

Coordinators

mgr Wojciech Nowaczyk

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Lecturers

Prerequisites

Basic knowledge of airframe components, control systems, hydraulic, pneumatic, fuel, air conditioning, and emergency systems. Ability to apply the scientific method in problem-solving. Readiness to collaborate in a team environment.

Course objective

Understanding the construction and operation principles of a flight simulator. Practicing daytime VFR and IFR flights. Instrument approach procedures. Navigating the aircraft using onboard instruments and ground-based radionavigation aids. Evaluating situations and taking appropriate action in special flight conditions. Learning the principles of radio communication procedures

Course-related learning outcomes

Knowledge:

In-depth understanding of selected topics in navigation, flight mechanics, and piloting techniques, including the use of simulators, flight principles, preflight procedures, and operational procedures. Knowledge of aviation safety and management, including human factors, pilot reliability assessment, human limitations in aircraft operation, health effects, and methods to improve physical condition.

Detailed knowledge of aircraft propulsion systems, including design, operational cycles, and technical descriptions.

Ability to self-learn using modern tools such as online lectures, databases, e-learning programs, and e-books.

Basic knowledge of human behavior and psychological factors affecting aviation operations.

Skills:

Ability to gather and analyze information from various sources (literature, databases in Polish and English) and critically evaluate and justify conclusions.

Proficiency in information and communication technologies applicable to aviation projects.

Understanding of the legal aspects of air transport operations, including European and national aviation regulations.

Ability to assess logistical risk in air transport operations.

Ability to work in teams, take on different roles, and prioritize tasks for achieving set goals.

Capability to plan and pursue lifelong learning, including advanced studies, postgraduate courses, and industry certifications.

Social Competencies:

Awareness of the importance of knowledge in solving engineering problems and understanding the consequences of poorly designed engineering projects.

Entrepreneurial mindset, including the ability to identify commercial applications for aviation technologies while considering business and social impacts.

Awareness of the social role of an aviation engineer, including the responsibility to communicate aviation engineering developments and traditions to the public.

Ability to identify and resolve ethical dilemmas in aviation and astronautics.

Social competences:

-

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Exercises: Knowledge is assessed through two 45-minute tests conducted in the 3rd and 7th classes..

Programme content

As part of the fourth stage of flight training, students undergo preparation for the MEP(L) (Multi-Engine Piston - Land) rating, specifically in Tasks 3 and 4. These tasks focus on developing piloting skills for multi-engine aircraft operations.

Training follows the Integrated ATP Training Manual, ensuring compliance with European aviation regulations.

Training Modules:

- Preparation for MEP (L) Stage 4 - Tasks 3 and 4

- ME - according to the Integrated ATP Training Manual

- ME IR - according to the Integrated ATP Training Manual

- New KSA (Knowledge, Skills, Attitudes) module

- Final Evaluation 2

Preparation for UPRT Stage 5

UPRT (Upset Prevention and Recovery Training) - in compliance with the Integrated ATP Training Manual

Course topics

Multi-Engine (ME) Training:

Focuses on technical and operational aspects of multi-engine flight, including normal and emergency procedures, power management, and onboard system coordination.

Multi-Engine Instrument Rating (ME IR):

Covers IFR (Instrument Flight Rules) operations for multi-engine aircraft, including instrument navigation, precision and non-precision approaches, and emergency management.

New KSA Module (Knowledge, Skills, Attitudes):

A modern approach to pilot training that includes:

Theoretical knowledge

Practical skills

Decision-making, cockpit resource management, and situational awareness

Final Evaluation 2:

Ensures students are ready to proceed with advanced training stages.

UPRT (Upset Prevention and Recovery Training):

Focuses on preventing and recovering from unusual flight attitudes. This is a mandatory ATP program component involving:

Aerodynamics theory

Practical inflight exercises

Techniques for handling high-G conditions and loss of control scenarios

Teaching methods

Exercises: Practical application of knowledge, including examples presented on the board and problem-solving tasks assigned by the instructor.

Bibliography

Basic:

Cichosz E., Aircraft Structure and Operation, WAT, Warsaw, 1986.

Olejnik A., Aircraft Construction, WAT, 1984.

Błaszczak J., Aircraft Design, Vol. I: External Loads, WAT, Warsaw, 1984

Additional:

Galant-Gołębiowska M., Flight Simulation Devices, Poznań University of Technology Publishing, Poznań, 2020.

Danilecki S., Aircraft Design, Warsaw University of Technology Publishing, 2000.

Polak Z., Rypulak A., Bilski J., Avionics, Instruments, and Onboard Systems, WSOSP, Dęblin, 1999.

Breakdown of average student's workload

	Hours	ECTS
Total workload	25	1,00
Classes requiring direct contact with the teacher	15	0,50
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	10	0,50