



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Transition thesis [S1Lot2-PSPL>PPrzej]

### Course

Field of study

Aviation

Year/Semester

3/6

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

0

Projects/seminars

4

### Number of credit points

5,00

### Coordinators

dr inż. Łukasz Brodzik

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### Lecturers

### Prerequisites

• Familiarity with topics related to the bachelor's thesis. • Ability to apply the scientific method in problem-solving, conducting experiments, and drawing conclusions. • Awareness of the limitations of one's knowledge and skills and the ability to ask precise questions. • Understanding of the importance of continued education.

### Course objective

• Preparation for independent completion of an engineering thesis. • Development of skills in conducting scientific research.

### Course-related learning outcomes

Knowledge:

Advanced knowledge of mathematics (algebra, analysis, differential equations, probability, analytical geometry) and physics (classical mechanics, optics, electricity and magnetism, solid-state physics, thermodynamics) applicable to aviation engineering and modeling.

Structured theoretical understanding of key technical issues and specialized topics related to air transport, including engineering techniques and tools.

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

#### Skills:

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

Proficiency in using information and communication technologies applicable to aviation projects.

Ability to plan and conduct experiments, including measurements and computer simulations, and correctly interpret results.

Capability to apply analytical, simulation, and experimental methods in solving civil aviation-related problems.

Ability to apply air traffic movement principles and design a runway according to ICAO regulations.

Competence in probability theory and statistical analysis, with the ability to interpret and apply statistical methods in aviation engineering.

Ability to collaborate and work in a team, taking on various roles and prioritizing tasks effectively.

Capability to plan and pursue lifelong learning, including opportunities for advanced studies and professional development.

#### Social Competencies:

Understanding that technical knowledge and skills become outdated rapidly.

Awareness of the importance of knowledge in solving engineering problems and the consequences of defective engineering projects.

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

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

#### Assessment Methods and Criteria

Final written assessment.

#### Social competences:

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### Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Final written assessment.

### Programme content

- Cause-and-effect analysis of a selected problem.
- Methodology for preparing scientific papers.
- In-depth analysis of a chosen topic

### Course topics

- Individual study of a selected theoretical, research, or design topic in the form of a short thesis.
- Topic selection.
- Preparation of an execution plan.
- Discussion and description of the selected topic.
- Presentation of results in document form.

### Teaching methods

Ongoing consultations to review progress and evaluation of document formatting

### Bibliography

Basic:

Korzyński M., Methodology of Experimentation, NT Publishing, Warsaw, 2006.

Wisłocki K., Methodology and Editing of Scientific Papers, Poznań University of Technology Publishing, Poznań, 2013.

Branowski B., Methods for Creative Problem Solving in Engineering, Wielkopolska Technical Corporation NOT, Poznań, 1999.

Additional:

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#### Breakdown of average student's workload

	Hours	ECTS
Total workload	125	5,00
Classes requiring direct contact with the teacher	10	4,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	115	1,00