



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Air traffic engineering [S1Lot2-ORL>IRL]

### Course

Field of study

Aviation

Year/Semester

3/5

Area of study (specialization)

Air Traffic Organisation

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

15

Laboratory classes

0

Other

0

Tutorials

15

Projects/seminars

0

### Number of credit points

2,00

### Coordinators

Michał Kaczmarek

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### Lecturers

### Prerequisites

Knowledge: Basic knowledge of aviation Skills: Able to analyze presented data and regulations and legal requirements. Able to implement data in new environments Social competences: Prepared to work independently with the presentation of its effects

### Course objective

Familiarization with air traffic engineering issues

### Course-related learning outcomes

Knowledge:

1. has structured and theoretically based general knowledge in the scope of key issues of technology and detailed

knowledge in the scope of selected issues concerning air transport, knows basic techniques, methods and tools

used in the process of solving tasks related to air transport, mainly of an engineering nature

2. has detailed knowledge related to selected issues in the scope of construction of manned and unmanned aircraft,

in the scope of on-board equipment, control systems, communication and recording systems, automation of individual systems, has basic knowledge of flight simulation training devices and simulation methods used to solve air transport issues

3. has basic knowledge of aviation law, organizations operating in civil aviation and knows the basic principles of functioning of state aviation, has basic knowledge of key issues of functioning of civil aviation

#### Skills:

1. is able to obtain information from various sources, including literature and databases, both in Polish and English, integrate it properly, interpret and critically evaluate it, draw conclusions and comprehensively justify opinions formulated by him/her
2. is able, when formulating and solving tasks concerning civil aviation, apply appropriately selected methods, including analytical, simulation or experimental methods
3. is able to analyse the strategies of enterprises and interpret their activities and apply in practice the basic tools of strategic analysis

#### Social competences:

1. is aware of the importance of knowledge in solving engineering problems and knows examples and understands the causes of malfunctioning engineering projects that have led to serious financial or social losses or to serious loss of health or even life
2. correctly identifies and resolves dilemmas related to the performance of the profession of an aviation and astronautics engineer

### Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Lecture - written test, exercises - written test

### Programme content

1. Introduction to air traffic issues
2. Flight planning in air traffic engineering - basic planning and optimization
3. Aircraft flight operations - types, possibilities and limitations
4. Aircraft service at airports - take-off and landing service procedures
5. Passenger service at airports
6. Limitations in air traffic engineering - meteorological conditions, strikes, natural disasters
7. Air traffic control - slot management
8. Research on air traffic parameters and its service in the area of the airport
9. Directions of development of air traffic engineering

### Course topics

Discussion of air traffic issues, flight planning principles, types of aircraft flight operations and their capabilities and limitations. Presentation of take-off and landing service procedures as well as passenger service. Discussion of air traffic restrictions and air traffic control. Presentation of directions of development of air traffic engineering.

### Teaching methods

Informative (conventional) lecture (transmission of information in a systematic way) - may be of a course (propaedeutic) or monographic (specialist) nature. Exercise method

### Bibliography

Basic:

1. Piotr Kozłowski, Sumeer Chakuu, Michał Nędza: Podstawy transportu lotniczego, 2012
2. Spyra Z., Witczak O.: Czynniki wpływające na wizerunek portów lotniczych, 2017
3. Pijet-Migoń Edyta: Zmiany rynku lotniczych przewozów pasażerskich w Polsce po akcesji do Unii Europejskiej, 2012

Additional:

1. Zarządzanie ruchem lotniczym w przestrzeni powietrznej RP, WLOP, Warszawa 2002.
2. Ustawa Prawo Lotnicze.

Breakdown of average student's workload

	Hours	ECTS
Total workload	50	2,00
Classes requiring direct contact with the teacher	30	1,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	20	1,00