



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Basics of using means of transport

### Course

Field of study

Aerospace Engineering

Area of study (specialization)

Level of study

First-cycle studies

Form of study

full-time

Year/Semester

1/2

Profile of study

general academic

Course offered in

Polish

Requirements

compulsory

### Number of hours

Lecture

30

Laboratory classes

0

Other (e.g. online)

Tutorials

15

Projects/seminars

### Number of credit points

4

### Lecturers

Responsible for the course/lecturer:

dr hab. inż. Grzegorz Szymański

Responsible for the course/lecturer:

Wydział Inżynierii Lądowej i Transportu

ul. Piotrowo 3 60-965 Poznań

### Prerequisites

The student knows the basics of physics and strength of materials. The student has basic knowledge about the construction of means of transport and the principles of operation of their components. He can analyze the interdependencies between the effects and causes of phenomena and events resulting from the laws of physics. He is fluent in Polish and English to the extent that he can read the technical specifications of the means of air transport in both these languages.

### Course objective

The aim of the course is to familiarize students with the issues related to the operation of air transport means. Acquainting with formulating and solving simple problems of using means of transport.

### Course-related learning outcomes

Knowledge

1. Has extended knowledge necessary to understand the profiled subjects and has specialist knowledge



about the construction, operation, air traffic management, safety systems, economic, social and environmental impact in the field of aviation and space.

2. Has detailed knowledge related to selected issues in the field of manned and unmanned aerial vehicles, in the field of on-board equipment, control systems, communication and registration systems, automation of individual systems.

3. Has ordered, theoretically founded specialist knowledge in the field of on-board equipment: as well as on-board and terrestrial electronic communication systems, remote sensing systems, observation systems, satellite navigation systems.

4. Has a basic knowledge of the life cycle of technical devices, facilities and systems, as well as the methods of their technical description.

#### Skills

1. Has the ability to self-educate with the use of modern teaching tools, such as remote lectures, websites and databases, teaching programs, e-books.

2. Can analyze facilities and technical solutions, can search in catalogs and on manufacturers' websites, ready components of machines and devices, including means and devices for transport and storage, assess their suitability for use in own technical and organizational projects.

3. Is able to organize and substantively manage the process of designing and operating an on-board device, machine or technical flying object from the group covered by the selected specialty.

#### Social competences

1. Is ready to critically evaluate the knowledge and content received, recognize the importance of knowledge in solving cognitive and practical problems, and consult experts in the event of difficulties in solving the problem on its own.

2. Understands the need for lifelong learning; can inspire and organize the learning process of other people.

#### Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Written credit for the lecture (test) and written credit for exercises (test).

#### Programme content

1. Technical operation

2. Changes in the technical condition during use

3. Statistical description of changes in state during use

4. Potential machine and process capability assessment

5. Analysis of operational data about mileage to failure and between failures



## Teaching methods

Informative (conventional) lecture (providing information in a structured way) - may be of a course (introductory) or monographic (specialist) character.

Exercise method (subject exercises, practice exercises) - in the form of auditorium exercises

## Bibliography

### Basic

1. Lewitowicz J.: Podstawy eksploatacji statków powietrznych - statek powietrzny i elementy teorii. Wydawnictwo Instytutu Technicznego Wojsk Lotniczych, Warszawa 2001.
2. Lewitowicz J.: Podstawy eksploatacji statków powietrznych - własności i właściwości eksploatacyjne statku powietrznego. Wydawnictwo Instytutu Technicznego Wojsk Lotniczych, Warszawa 2003.
3. Smalko Z.: Podstawy eksploatacji technicznej pojazdów. Warszawa, Wydawnictwo Politechniki Warszawskiej, 1987

### Additional

1. Macha E.: Reliability of machines. Wydawnictwo Politechniki Opolskiej, Opole 2001
2. Gołąbek A.: Eksploatacja i niezawodność maszyn. Wrocław, Wyd. Politechniki Wrocławskiej, 1988
3. Niziński S.: Eksploatacja obiektów technicznych. Wyd. ITeE, Radom, 2002

## Breakdown of average student's workload

	Hours	ECTS
Total workload	105	4,0
Classes requiring direct contact with the teacher	55	2,0
Student's own work (literature studies, preparation for classes, preparation for tests,) <sup>1</sup>	50	2,0

<sup>1</sup> delete or add other activities as appropriate