



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Construction of air transport means

Course

Field of study

Aerospace Engineering

Area of study (specialization)

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

0

Other (e.g. online)

Tutorials

15

Projects/seminars

Number of credit points

4

Lecturers

Responsible for the course/lecturer:

dr inż. Mateusz Nowak

Responsible for the course/lecturer:

mateusz.s.nowak@put.poznan.pl

Wydział Inżynierii Lądowej i Transportu

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Prerequisites

Knowledge: Basic knowledge of physics and geography

Skills: Is able to analyze the interdependencies between the effects and causes of phenomena and events resulting from the laws of physics.

Social competences: Prepared for teamwork.

Course objective

Getting to know the basic structure of air 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 and theoretically founded knowledge of computer-aided manufacturing methods and their application in industry.
4. Has extended knowledge of metal, non-metal and composite materials used in machine construction, in particular about their structure, properties, methods of production, heat and thermo-chemical treatment and the influence of plastic processing on their strength.
5. 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.
6. Has detailed knowledge related to selected issues in the field of ground handling of aircraft and propulsion systems, taking into account logistics aspects.
7. Has detailed and structured knowledge in the field of the use of air technical facilities in the field of passenger, goods, dangerous goods transport, as well as in the management of air operations and airports.

Skills

1. is able to communicate using various techniques in the professional environment and other environments using the formal notation of construction, technical drawing, concepts and definitions of the field of study studied.
2. can draw a diagram and a complex machine element in accordance with the rules of technical drawing, can create a system diagram, select elements and perform basic calculations of the electrical and electronic system of machines or aircraft and space equipment.
3. Is able to develop a safety instruction for an on-board device, machine or technical flying object under specific environmental conditions.

Social competences

1. Understands the need for lifelong learning; can inspire and organize the learning process of other people.
2. 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.
3. Is aware of the social role of a technical university graduate, and especially understands the need to formulate and convey to the society, in particular through the mass media, information and opinions on



technological achievements and other aspects of engineering activities; makes efforts to provide such information and opinions in a commonly understandable manner.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Final exam, test and completion of exercises.

Programme content

Division of means of air transport

Construction of particular types of means of air transport

Equipment for air transport

Installations used in exemplary means of air transport

Production technologies of means of air transport

Technical documentation and instructions for the use of exemplary means of air transport

Design calculations for individual means of air transport (basic principles of aerodynamics, structural strength)

Selection of materials for means of air transport

Teaching methods

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

The exercise method (subject exercises, practice exercises) - in the form of auditorium exercises (application of acquired knowledge in practice - may take various forms: solving cognitive tasks or training psychomotor skills; transforming a conscious activity into a habit through repetition).

Bibliography

Basic

1. Błaszczak J., Wprowadzenie w technikę lotniczą, WAT, Warszawa 1982
2. Cheda W., Malski M., Techniczny poradnik lotniczy. Płatowce, WKŁ, Warszawa 1981
3. Karpowicz J., Współczesne konstrukcje lotnicze, AON, Warszawa 2003.
4. Lewitowicz J., Podstawy eksploatacji statków powietrznych. Tom I, ITWL, Warszawa 2001

Additional

1. Pilecki S., Lotnictwo i kosmonautyka, WKŁ, Warszawa 1984



Breakdown of average student's workload

| | Hours | ECTS |
|---|-------|------|
| Total workload | 100 | 4,0 |
| Classes requiring direct contact with the teacher | 50 | 2,0 |
| Student's own work (literature studies, preparation for classes, preparation for tests,) ¹ | 50 | 2,0 |

¹ delete or add other activities as appropriate