



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Aircraft general knowledge

### 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

15

Laboratory classes

Other (e.g. online)

Tutorials

Projects/seminars

### Number of credit points

1

### Lecturers

Responsible for the course/lecturer:

mgr Wojciech Muszyński

Responsible for the course/lecturer:

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### Prerequisites

The student starting this subject should have basic knowledge of airframe assemblies, control systems, hydraulic, pneumatic, fuel, air-conditioning and emergency systems. He should also have the ability to apply the scientific method in solving problems and be ready to cooperate within a team.

### Course objective

To acquaint the student with the construction of the aircraft, its executive teams.

### Course-related learning outcomes

Knowledge

1. has detailed knowledge related to selected issues in the construction of manned and unmanned aircraft, including on-board systems and their main components.



2. has expanded knowledge of technical vocabulary, in particular specialized terminology used in the fields of science and technology related to aviation engineering.
3. has a basic knowledge of the basic processes occurring in the life cycle of devices, facilities and technical systems, as well as their technical description in the field of aviation engineering.

#### Skills

1. ma umiejętność samokształcenia się z użyciem nowoczesnych narzędzi dydaktycznych, takich jak zdalne wykłady, internetowe strony i bazy danych, programy dydaktyczne, książki elektroniczne.
2. potrafi pozyskiwać informacje z literatury, internetu, baz danych i innych źródeł. Potrafi integrować uzyskane informacje, interpretować i wyciągać z nich wnioski.
3. potrafi analizować obiekty i rozwiązania techniczne, potrafi wyszukiwać w katalogach i na stronach producentów gotowe komponenty maszyn i urządzeń, w tym środków i urządzeń transportowych i magazynowych, ocenić ich przydatność do wykorzystania we własnych projektach technicznych i organizacyjnych.

#### Social competences

1. is aware of the importance of maintaining the principles of professional ethics.
2. understands the need for critical assessment of knowledge and continuous education.
3. is aware of the social role of a technical university graduate, and in particular understands the need to formulate and communicate to the public, in particular through the mass media, information and opinions on the achievements of technology and other aspects of engineering activities; endeavors to provide such information and opinions in a generally understandable way.

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

Learning outcomes presented above are verified as follows:

Lecture:

- assessment of knowledge and skills demonstrated on the written test - 1.5 hour

#### Programme content

Lecture:

System design, loads, stresses, maintenance, fatigue and corrosion. Attachment methods and detecting the development of faulty attachments. Materials, structural components, loads, stresses and aeroelastic vibrations (flutter). Flight controls, system components, design, operation, indications and warnings, degraded modes of operation, jamming. Fly-by-wire (FBW) control systems. Electrics: general, definitions, basic applications: circuit breakers, logic circuits.

#### Teaching methods



1. Lecture: multimedia presentation, illustrated with examples given on the board.

## Bibliography

### Basic

1. Cichosz E., Konstrukcja i praca płatowca, WAT, Warszawa 1986 r.
2. Olejnik A., Budowa statków powietrznych, WAT 1984 r.
3. Błaszczak J., Konstrukcja samolotów, cz.I., Obciążenia zewnętrzne, WAT, Warszawa 1984 r.
4. Danilecki S., Projektowanie samolotów, Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa 2000 r.
5. Polak Z., Rypulak A., Bilski J., Awionika, przyrządy i systemy pokładowe, WSOSP, Dęblin 1999 r.
6. Spitzer Cary R., The Avionics Handbook, AvioniCon Inc, Williamsburg 2001 r.
7. Kazana J., Lipski J., Budowa i eksploatacja pokładowych przyrządów lotniczych, WKiŁ, Warszawa 1983 r.

### Additional

## Breakdown of average student's workload

	Hours	ECTS
Total workload	32	1,0
Classes requiring direct contact with the teacher	17	0,5
Student's own work (literature studies, preparation for written tests ) <sup>1</sup>	15	0,5

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