



COURSE DESCRIPTION CARD - SYLLABUS

Course name

General knowledge about the aircraft 2 [S1Lot2-PSPL>OWoS3]

Course

Field of study

Aviation

Year/Semester

2/4

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

30

Laboratory classes

0

Other

0

Tutorials

15

Projects/seminars

0

Number of credit points

2,00

Coordinators

Kajetan Szymańczyk

kajetan.szymanczyk@put.poznan.pl

Lecturers

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 ordered and theoretically founded general knowledge in the field of key technical issues and detailed knowledge of selected issues related to air transport, knows the basic techniques, methods and tools used in the process of solving tasks related to air transport, mainly of an engineering nature
2. has basic knowledge of research methods and how to prepare and conduct research, and knows the rules of editing a scientific work
3. the student has knowledge of aviation safety and management. The student knows the concept of the human factor and methods of assessing human reliability, has detailed knowledge related to selected

issues in the field of human capabilities and limitations during aircraft operation in flight, its impact on health and the ability to perform air operations, as well as the possibility of improving physical condition

4. has the ability to self-study with the use of modern teaching tools, such as remote lectures, websites and databases, teaching programs, e-books

Skills:

1. is able to obtain information from various sources, including literature and databases, both in Polish and in English, integrate them properly, interpret them and make a critical evaluation, draw conclusions and exhaustively justify the opinions they formulate
2. is able to properly use information and communication techniques, applicable at various stages of the implementation of aviation projects
3. is able to properly plan and perform experiments, including measurements and computer simulations, interpret the obtained results, and correctly draw conclusions from them
4. can, when formulating and solving tasks related to civil aviation, apply appropriately selected methods, including analytical, simulation or experimental methods
5. student can use theoretical probability distributions. Student is able to analyze and interpret statistical data. Student is able to use the methods and tools of mathematical statistics in engineering practice
6. is able to prepare a short research paper while maintaining the basic editorial rules. He can choose appropriate methods for the conducted research and is able to carry out a basic analysis of the results.
7. is able to organize, cooperate and work in a group, assuming various roles in it, and is able to properly define priorities for the implementation of a task set by himself or others
8. is able to plan and implement the process of own permanent learning and knows the possibilities of further education (2nd and 3rd degree studies, postgraduate studies, courses and exams conducted by universities, companies and professional organizations)

Social competences:

1. understands that in technology, knowledge and skills very quickly become obsolete
2. correctly identifies and resolves dilemmas related to the profession of an aerospace engineer

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

Exercises:

- knowledge acquired during the exercises is verified by two 45-minute colloquia carried out during 3 and 7 classes

Programme content

Lecture:

semester 4:

System design. Design concepts. Level of certification. Loads and stresses. Fatigue and corrosion.

Describe and explain fatigue and corrosion.

semester 4:

Attachment methods and detecting the development of faulty attachments. Composite and other materials. Aeroplane: wings, tail surfaces and control surfaces - design.

Course topics

Maintenance methods: hard-time and on-condition monitoring.

Maximum structural masses.

Loads, stresses and aeroelastic vibrations (flutter).

Fuselage, landing gear, doors, floor, windscreen and windows.

Teaching methods

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

2. Exercises: examples given on the board and performance of tasks given by the teacher - practical exercises.

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:

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Breakdown of average student's workload

	Hours	ECTS
Total workload	60	2,00
Classes requiring direct contact with the teacher	45	1,50
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	15	0,50