COURSE DESCRIPTION CARD - SYLLABUS

Course name

Radars, communication and surveillance

Course

Field of study

Aerospace Engineering

Year/Semester

1/1

Area of study (specialization)

Civil aviation

Profile of study

general academic

Level of study

Second-cycle studies

Course offered in

Polish

Form of study

full-time

Requirements

compulsory

Number of hours

Lecture

15

Laboratory classes

15

Other (e.g. online)

0

Tutorials

0

Projects/seminars

0

Number of credit points

2

Lecturers

Responsible for the course/lecturer:

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Wydział Inżynierii Lądowej i Transportu

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Responsible for the course/lecturer:

Prerequisites

Knowledge: Basics of computer science, communication systems, flight parameters recording and remote sensing systems

Skills: 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 scope of the studied field of study, has the ability to self-study with the use of modern teaching tools, such as remote lectures, websites and databases, teaching programs, e-books, can obtain information from literature, the Internet, databases and other sources. Can integrate the obtained information, interpret and draw conclusions from it, and create and justify opinions

Social competences: Knows the limitations of own knowledge and skills; can work in a group.

Course objective

To acquaint the student with basic information about air navigation and modern communication systems and their practical use in flight simulation conditions

Course-related learning outcomes

Knowledge

1. Has broadened knowledge, necessary for understanding of profile subjects and specialist knowledge about construction, methods of construction, manufacturing, operation, air traffic management, security systems, impact on the economy, society and the aviation and aerospace environment for selected specialties:

- Aeronautical Engineering

- Civil Aviation

Has ordered, theoretically founded expertise in the field of on-board equipment: as well as on-board and ground-based electronic communication systems, remote sensing systems, observation systems, satellite navigation systems

Has basic knowledge in the field of technical diagnostics of means of transport and methods and ways of solving issues of their technical condition and forecasting, knows: conditions for diagnosing technical facilities, the essence of technical diagnostics in the application to air transport, tasks and purposes of technical diagnostics

Skills

Is able to communicate using various techniques in a professional environment and other environments using a formal record of construction, technical drawing, concepts and definition of the scope of the studied field of study

Has the ability to self-study using modern teaching tools, such as remote lectures, websites and databases, didactic programs, e-books

Can acquire information from literature, the Internet, databases and other sources. Can integrate the information obtained and interpret conclusions and create and justify opinions

Social competences

Understands the need to learn throughout life; can inspire and organize the learning process of other people

Is ready to critically evaluate your knowledge and content, recognize the importance of knowledge in solving cognitive and practical problems and to consult experts in the event of difficulties in solving the problem yourself

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

LECTURE: written exam in the scope of content conducted as part of the lecture

Laboratory: final grade based on the grades for the reports

Programme content

1. The origins of air navigation

2. Basic concepts and navigational calculations

3. GNSS Navigation (Global Navigation Satellite System)

4. Meteorology in aviation

5. Radio navigation devices

6. Precision approach systems

7. Errors in the positioning of aircraft

8. Rules for determining the optimal route of passage

9. On-board and terrestrial radars: use and determination of their range and accuracy

Teaching methods

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

Laboratory (experiment) method (students independently conduct experiments)

Bibliography

Basic

1. Masalski.M., Urządzenia radiowe i radionawigacyjne, Aeroklub Warszawski, Warszawa, 2009.

2. Stateczny A., Nawigacja radarowa: praca zbiorowa, Gdańskie Towarzystwo Naukowe, Gdańsk, 2011.

3. Fiedczyn S., Nawigacja lotnicza, Wydawnictwa Komunikacji i Łączności, Warszawa, 1974.

4. Kekusz G., Vademecum nawigatora lotniczego, Wydawnictwa Komunikacyjne, Warszawa, 1956.

Additional

1. Polak Z., Rypulak A., Bilski J., Awionika, przyrządy i systemy pokładowe, WSOSP, Dęblin, 1999.

2. Wolper James S., Understanding mathematics for aircraft navigation, McGraw-Hill Companies Inc, 2001.

3. Narkiewicz J., Globalny system pozycyjny, WKiŁ, 2003.

Breakdown of average student's workload

	Hours	ECTS
Total workload	56	2,0
Classes requiring direct contact with the teacher	32	1,0
Student's own work (literature studies, preparation for laboratory classes, preparation for exam) [1]	24	1,0

[1] delete or add other activities as appropriate