COURSE DESCRIPTION CARD - SYLLABUS

Course name
Meterology [S1Lot2>Meteo]

Course

Field of study
Aviation

Year/Semester
1/2

Area of study (specialization)
–

Profile of study
general academic

Level of study
first-cycle

Course offered in
Polish

Form of study
full-time

Requirements
compulsory

Number of hours

Lecture
15

Laboratory classes
0

Other
0

Tutorials
15

Projects/seminars
0

Number of credit points

1,00

Coordinators

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Lecturers

Prerequisites

A student starting this subject should have basic knowledge of phenomena occurring in the environment, physical processes that shape weather, interpretation of weather forecasts presented in various forms. They should also have the ability to apply the scientific method in solving problems and be willing to cooperate within a team.

Course objective

to familiarize the student with the processes and phenomena that determine weather, weather systems and phenomena that are dangerous to flight and that interfere with the operation of navigation and communication devices.

Course-related learning outcomes

Knowledge:
1. has knowledge of the method of presenting research results in tabular and graph form, performing measurement uncertainty analysis.
2. has basic knowledge of vocabulary used in English to describe mathematical operations and data presented in a diagram/graph. Has knowledge of formulating a text in English explaining/describing a

selected specialist issue, has basic knowledge of vocabulary used in English to describe technological support for air communication, flight control systems, airport safety procedures related to the presence of animals, aircraft control surfaces, aircraft maneuvers.
3. has basic knowledge of environmental protection in transport, is aware of the threats related to environmental protection and understands the specific impact of mainly air transport on the environment and the social, economic, legal and other non-technical conditions of engineering activities.

Skills:
1. is able to apply appropriately selected methods, including analytical, simulation or experimental methods, when formulating and solving tasks related to civil aviation.

Social competences:
1. understands that in technology knowledge and skills become obsolete very quickly.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Lecture:-
-assessment of knowledge and skills demonstrated in the written test - 1.5 hours.
Exercises:
- knowledge acquired during the exercises is verified by two 45-minute tests conducted during 3 and 7 classes

Programme content

Lecture:
Atmosphere, troposphere, stratosphere, temperature, development and types of inversions, atmospheric pressure, air density, International Standard Atmosphere (ISA). Wind, definition and measurements of wind. Thermodynamics. Clouds and fog. Air masses and fronts. Atmospheric pressure systems: highs, lows, non-frontal. Hazards to flight: icing, turbulence, storms. Meteorological information.
Exercises:
Composition, extent, vertical division of the atmosphere. Temperature at the surface of the earth, insolation, surface effects, diurnal fluctuations, influence of cloud cover, influence of wind. Changes in pressure depending on altitude, isohypses. Interdependence of pressure, temperature and density. Measurement of altitude. Basic causes of wind formation, pressure gradient, Coriolis force, gradient wind. Types of clouds and classification of clouds. Movement of fronts and pressure systems, duration.

Course topics

Atmosphere, troposphere, stratosphere, temperature, development and types of inversions, atmospheric pressure, air density, International Standard Atmosphere (ISA). Wind, definition and measurements of wind. Thermodynamics. Clouds and fog. Air masses and fronts. Atmospheric pressure systems: highs, lows, non-frontal. Hazards to flight: icing, turbulence, storms. Meteorological information. Composition, extent, vertical division of the atmosphere. Temperature at the surface of the earth, insolation, surface effects, diurnal fluctuations, influence of cloud cover, influence of wind. Changes in pressure depending on altitude, isohypses. Interdependence of pressure, temperature and density. Measurement of altitude. Basic causes of wind formation, pressure gradient, Coriolis force, gradient wind. Types of clouds and classification of clouds. Movement of fronts and pressure systems, duration.

Teaching methods

1. Lecture: multimedia presentation, illustrated with examples given on the board.
2. Exercises: examples given on the board and performing tasks given by the instructor - practical exercises.

Bibliography

Basic:

1. Domicz J., Szutowski L. Podręcznik pilota samolotowego, Technika Poznań 2001 Dunlop S.,
2. Pogoda - przewodnik ilustrowany, Świat Książki Warszawa 2003 Międzynarodowy atlas chmur, WMO 1956
3. Ostrowski M., Meteorologia dla lotnictwa sportowego, Aeroklub Polski Warszawa 2004
4. Petterssen S., Zarys meteorologii PWN Warszawa 1964
5. Roth G., Pogoda i klimat, Świat Książki Warszawa 2000
6. Schmidt M., Meteorologia WKiŁ Warszawa 1975
7. Schmidt M., Meteorologia dla każdego WKiŁ Warszawa 1972
8. Szewczak P., Meteorologia dla pilota samolotowego (PPL, CPL, ATPL, IR), Avia-test Poznań 2007
9. Słownik meteorologiczny pod red. Niedźwiedź T. PTGeofizyczne IMGW Warszawa 2003
10. Słownik pojęć geograficznych WEGŚ pod red. Kostrzewski A. Poznań 2001

Additional:
11. Szczeciński Cz., Meteorologia na usługach lotnictwa WK Warszawa 1952
12. Światowa Organizacja Meteorologiczna, Podstawy meteorologii opr. B.J.Retallack IMGW 1991
13. Tamulewicz J., Pogoda i klimat Ziemi, WEGŚ tom V Poznań 1997
14. Tamulewicz J., Wody i klimat Ziemi, Pogoda i klimat Poznań 2001
15. Woś A. Meteorologia dla geografów PWN Warszawa 1996
16. Zwieriew A.S. Meteorologia synoptyczna, WKiŁ Warszawa 1965

Breakdown of average student's workload

	Hours	ECTS
Total workload	32	1,00
Classes requiring direct contact with the teacher	30	1,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	2	0,00