



KARTA OPISU PRZEDMIOTU - SYLABUS

Nazwa przedmiotu

Algorytmy planowania lotu

Przedmiot

Kierunek studiów

Automatyka i robotyka

Studia w zakresie (specjalność)

Smart aerospace and autonomous systems (Inteligentne systemy latające i systemy autonomiczne)

Poziom studiów

drugiego stopnia

Forma studiów

stacjonarne

Rok/semestr

1 / 2

Profil studiów

ogólnoakademicki

Język oferowanego przedmiotu
angielskim

Wymagalność

obligatoryjny

Liczba godzin

Wykład

15

Laboratoria

0

Inne (np. online)

0

Ćwiczenia

0

Projekty/seminaria

0

Liczba punktów ECTS

3

Wykładowcy

Odpowiedzialny za przedmiot/wykładowca:

płk pil. Mirosław Jakubowski

Odpowiedzialny za przedmiot/wykładowca:

Instytut Automatyki i Robotyki

ul. Piotrowo 3A, 60-965 Poznań

Wymagania wstępne

Wiedza: Student starting this module should have basic knowledge regarding flight planning.

Umiejętności: He/she should have skills allowing solving basic problems related to planning of the flight and should understand the need to extend his/her competences.

Kompetencje Społeczne: Student should show attitudes as honesty, responsibility, perseverance, curiosity, creativity, manners, and respect for other people.

Cel przedmiotu

The objective of the course is to focus on the elements which have an influence on flight planning to include:



1. Fundamentals of meteorology (basic meteorological elements, cloud formation and precipitation, wind influence for flight planning, meteorological hazards to aviation such as thunderstorms, icing, windshear and turbulence). Interpretation of meteorological messages (METAR, TAF, ATIS broadcast).
2. Basic aerodynamic law with encompass of four forces of flight (weight, lift, drag, thrust), center of gravity, mean aerodynamic chord (MAC).
3. Introduction of mass and balance theory (determining an optimal loading of an aeroplane to ensure that the longitudinal centre of gravity and mass are within the structural and performance limit, principle of balance).
4. Basic knowledge of general navigation to include main method of air navigation, navigation aids, basic terms and definitions.
5. Flight instruments and principle of operation (pressure and gyroscopic instruments).
6. Practical elements of the air law to include rules of the air, types of airspace, air traffic controls (ATC) responsibility, airport elements and flight plan sheet familiarization.

Przedmiotowe efekty uczenia się

Wiedza

1. acquire knowledge on aircraft elements - [K_W4]
2. have wide and in-depth knowledge on flight planning - [K_W5]
3. be informed about basic aircraft and airport systems - [K_W6]
4. know methodology of flight planning using available data from documents and systems - [K_W8]

Umiejętności

1. is able to acquire, integrate, interpret and evaluate information from literature, databases and internet sources on the field of selected issues of flight planning - [K_U1]
2. is able to verbally present the elements which has the influence to flight planning process - [K_U5]
3. is able to apply control and planning methods to solve engineering as well as scientific problems - [K_U9]
4. is able to integrate knowledge coming from different resources to formulate and solve engineering tasks - [K_U10]
5. is able to evaluate strong and weak points of forecasted weather and available navigation systems and asses their usefulness to flight planning tasks - [K_U13]

Kompetencje społeczne

1. understands that knowledge and skills related to aviation technology quickly becomes non relevant - [K_K1]



2. is aware of the importance and understands the non-technical aspects and effects of engineering activities, including its impact on the environment, and the related responsibility for decisions - [K_K2]

3. can think and act in a creative and enterprising way- [K_K5]

Metody weryfikacji efektów uczenia się i kryteria oceny

Efekty uczenia się przedstawione wyżej weryfikowane są w następujący sposób:

Formative assessment:

Based on answers to question in the written exam.

Total assessment:

a) verification of assumed learning objectives related to lectures:

i. evaluation of acquired knowledge on the basis of the written exam,

ii. discussion of correct answers in the exam,

iii. monitoring students activities during classes,

Additional elements cover:

i. discussing more general and related aspects of the class topic,

Treści programowe

1. Fundamentals of meteorology

2. Basic aerodynamic laws and definitions

3. Introduction to general navigation

4. Flight instruments

5. Practical elements of the air law

Learning methods:

1. Lectures: multimedia presentation, presentation illustrated with examples presented on black board, solving tasks, discussion.

Metody dydaktyczne



Literatura

Podstawowa

1. Flight planning, JAA ATPL Training, Jeppesen Sanderson Inc, 2004
2. Meteorology, JAA ATPL Training, Jeppesen Sanderson Inc, 2004
3. General Navigation, JAA ATPL Training, Jeppesen Sanderson Inc, 2004

Uzupełniająca

1. Air Force Pamphlet 11-238, Flying Operations, Aircrew Quick Reference to the METAR and TAF codes, 17 March 2011

Bilans nakładu pracy przeciętnego studenta

	Godzin	ECTS
Łączny nakład pracy	75	3
Zajęcia wymagające bezpośredniego kontaktu z nauczycielem	20	1
Praca własna studenta (studia literaturowe, przygotowanie do zajęć, przygotowanie do zaliczenia) ¹	55	2

¹ niepotrzebne skreślić lub dopisać inne czynności