COURSE DESCRIPTION CARD - SYLLABUS

Course name
Flight planning [S2AiR1E-ISLiSA>APL]

Course

Field of study
Automatic Control and Robotics

Year/Semester
1/2

Area of study (specialization)
Smart Aerospace and Autonomous Systems

Profile of study
general academic

Level of study
second-cycle

Course offered in
English

Form of study
full-time

Requirements
compulsory

Number of hours

Lecture
15

Laboratory classes
0

Other
0

Tutorials
0

Projects/seminars
0

Number of credit points

3,00

Coordinators

Mirosław Jakubowski

Lecturers

Prerequisites

Knowledge: Student starting this module should have basic knowledge regarding flight planning. Skills: 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. Social competencies: Student should show attitudes as honesty, responsibility, perseverance, curiosity, creativity, manners, and respect for other people.

Course objective

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.

Course-related learning outcomes

Knowledge
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]
Skills
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]
Social competences
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]

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Learning outcomes presented above are verified as follows:
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,

Programme content

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.

Course topics

none

Teaching methods

Bibliography

Basic
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

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

Breakdown of average student's workload

	Hours	ECTS
Total workload	75	3,00
Classes requiring direct contact with the teacher	20	1,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	55	2,00