



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Control systems of UAV

Course

Field of study

Aviation and cosmonautics

Area of study (specialization)

Unmanned Aerial Vehicles

Level of study

Second-cycle studies

Form of study

full-time

Year/Semester

2/3

Profile of study

general academic

Course offered in

polish

Requirements

elective

Year/Semester

2/3

Profile of study

general academic

Course offered in

polish

Requirements

elective

Number of hours

Lecture

15

Laboratory classes

0

Other (e.g. online)

0

Tutorials

0

Projects/seminars

15

Number of credit points

2

Lecturers

Responsible for the course/lecturer:

dr Jędrzej Łukasiewicz

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tel. 61 224 45 11

Wydział Inżynierii Lądowej i Transportu

ul. Piotrowo 3, 60-965 Poznań

Responsible for the course/lecturer:

Responsible for the course/lecturer:

Prerequisites

Knowledge:

The student has a basic knowledge of the construction of unmanned aerial vehicles, physics in the field of first degree studies,

Skills:

The student is able to analyze complex processes: identify and describe their component parts.

Social competences:

The student is able to cooperate in a group, assuming various roles in it. The student is able to determine the priorities important in solving the tasks set before him. The student shows independence in solving problems, gaining and improving the acquired knowledge and skills.

Course objective

To acquaint students with issues related to the methods of controlling unmanned aerial vehicles



Course-related learning outcomes

Knowledge

1. Has extended knowledge of the construction, piloting and possibilities of using unmanned aerial vehicles in various areas of human activity
2. Has detailed and structured knowledge in the field of risk management in unmanned operations with varying degrees of operator control

Skills

1. Is able to plan and perform a flight on an unmanned aerial vehicle, taking into account the availability of airspace, terrain obstacles, UAV capabilities and the type of flight
2. Can lead the process of designing an unmanned aircraft and its operation based on known components and flight physics

Social competence

1. 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
2. is able to properly define the priorities for the implementation of the task set by himself or others

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Lecture: written test (open test and questions)

Project: evaluation of the written paper

Programme content

LECTURE:

1. Principles of electro-magnetic propagation
2. Sources of disturbances in the emission of electro-magnetic radiation
3. Positioning systems used in on-board UAV devices
4. Sources of errors in positioning systems
5. Eutonomic flights - ground distance sensors and pressure sensors
6. Control software for UAV flights

Teaching methods

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

Bibliography

Basic

1. Prawo i procedury lotnicze / Henryk Jafernik, Radosław Fellner, Gliwice, 2015
2. Ustawa prawo lotnicze
3. Globalny system pozycyjny GPS. Budowa, działanie, zastosowanie, Janusz Narkiewicz

Additional



Breakdown of average student's workload

	Hours	ECTS
Total workload	50	2,0
Classes requiring direct contact with the teacher	30	1,0
Student's own work (literature studies, preparation for test, project preparation) ¹	20	1,0

¹ delete or add other activities as appropriate