



Subject card

Subject name and code	UAV project, PG_00053259						
Field of study	Geodesy and Cartography						
Date of commencement of studies	October 2021		Academic year of realisation of subject		2023/2024		
Education level	first-cycle studies		Subject group		Optional subject group Subject group related to scientific research in the field of study		
Mode of study	Full-time studies		Mode of delivery		at the university		
Year of study	3		Language of instruction		Polish		
Semester of study	6		ECTS credits		3.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Department of Geodesy -> Faculty of Civil and Environmental Engineering						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Paweł Burdziakowski				
	Teachers						
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	15.0	0.0	15.0	0.0	30
	E-learning hours included: 0.0						
Learning activity and number of study hours	Learning activity	Participation in didactic classes included in study plan		Participation in consultation hours		Self-study	SUM
	Number of study hours	30		5.0		40.0	75
Subject objectives	The purpose of the course is to teach practical operation and piloting of survey BSPs, including the performance of survey missions.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K6_U14] can apply the necessary skills to conduct independent work in the field of topographic surveys along with the elaborating of results, geodetic investment service, surveying and inventory measurement, photogrammetry and remote sensing, and making the maps and elaborations for legal purposes including delimitation and subdivision of real estate		Be able to perform the basic tasks of piloting a BSP in ATTI mode and perform a survey flight in ATTI mode		[SU4] Assessment of ability to use methods and tools		
	[K6_K02] is ready to solve problems related to the profession of geodesy and cartography engineer and to assess risks and effects of the performed activity		Knows how to analyse the problem of BSP measurement and how to estimate the risk of performing an aerial operation		[SK3] Assessment of ability to organize work		
	[K6_K01] can think and act in a creative and enterprising way; is ready to define priorities for the implementation of an individual or group task; understands the need for continuous education and professional responsibility for his own and his team's activities, and being ready to assess their own limitations, knows when to ask experts		Be able to identify the essential elements of a photogrammetric data acquisition task and perform the task correctly during fieldwork with the BSP		[SK5] Assessment of ability to solve problems that arise in practice		
	[K6_U08] can use modern measurement technologies to solve common tasks in 3D modeling		Be able to plan and execute a UAV survey flight in AUTO mode		[SU4] Assessment of ability to use methods and tools		

Subject contents	<ul style="list-style-type: none">• Practical exercises according to the BSP flight program.• Execution of BSP field measurements according to the prepared preparatory documentation			
Prerequisites and co-requisites	<ul style="list-style-type: none">• Registered BSP pilot profile at drones.ulc.gov.pl• Completed course and exam for A1 and A3 ratings• Valid A1 and A3 ratings			
Assessment methods and criteria		Subject passing criteria	Passing threshold	Percentage of the final grade
		UAV Simulation flight	80.0%	20.0%
		AUTO UAV Flight	80.0%	30.0%
		UAV Flight	80.0%	50.0%
Recommended reading	Basic literature		<ul style="list-style-type: none">• https://eurodrone.com.pl/dronowskaz• drony.ulc.gov.pl• http://edziennik.ulc.gov.pl/legalact/2021/35/• Drony Wiktor Wyszywacz• Opracowania fotogrametryczne z niskiego pułapu / Michał Kędzierski (red. nauk.), Anna Fryškowska, Damian Wierzbicki.	
	Supplementary literature		Commission Regulation (EU) 2019/945 of March 12, 2019 on unmanned aerial systems and operators of unmanned aerial systems from third countriesCommission Implementing Regulation (EU) 2019/947 of May 24, 2019 on regulations and procedures for the operation of unmanned aerial vehicles.	
	eResources addresses		Adresy na platformie eNauczanie: Projekt i Praktyka Lotu (2023/2024) - Moodle ID: 38418 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=38418	
Example issues/ example questions/ tasks being completed	Perform practical tasks according to the BSP training programPerform the measurement of BSP type DJI			
Work placement	Field exercises			