University of Gdańsk

Subject card

Subject name and code	Application of UAV in Hydrography - lecture, PG_00201150		
Field of study	Marine Hydrography		
Date of commencement of studies	October 2026	Academic year of realisation of subject	2028/2029
Education level	Bachelor's studies	Subject group	Obligatory subject group in the field of study Optional subject group Subject group related to practical vocational preparation
Mode of study	full-time studies	Mode of delivery	at the university
Year of study	3	Language of instruction	Polish
Semester of study	5	ECTS credits	2.0
Learning profile	practical	Assessment form	credit
Conducting unit			
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Piotr Bekier	
	Teachers		

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	20.0	0.0	0.0	0.0	0.0	20

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	20	1.0	29.0	50

Subject objectives

1. Discussion of the possibilities and limitations of using photogrammetric data obtained remotely using satellite, air and unmanned aerial vehicle systems in hydrography.
2. To familiarize students with photogrammetry methods, satellite data correction and photogrammetric data processing.
3. Developing skills in creating bathymetric maps and separating the coastline based on photogrammetric data from unmanned aerial vehicle raids.
4. Familiarization with the basic BST flight conditions and aviation law regarding flights.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[HML3-W08] knows and understands, at an advanced level, principles of operation and use of measuring instruments used in professional activities related to the field of study, including principles for their calibration and accuracy assessment	knows at an advanced level the principles of operation and use of measuring instruments employed in professional activities related to their field of study, including the principles of their calibration and accuracy assessment	[SW4] test/exam - oral or written

Subject contents

Lectures: National and international law provisions regarding drones - unmanned aerial vehicles (UAVs). Multi-rotor aircraft - structure and principles of operation. Learning to operate a multi-rotor aircraft. Basics of aerial photogrammetry. Characteristics of modern photogrammetric technologies. Technological conditions for the construction of the Digital Relief Model. Technological stages of creating an aerial orthophotomap.

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
test	51.0%	100.0%

Recommended reading	Basic literature	1. KURCZYŃSKI Z.: Lotnicze i satelitarne obrazowanie Ziemi. Tom I i II. Oficyna wydawnicza Politechniki Warszawskiej, Warszawa 2006. 2. KURCZYŃSKI Z., PREUSS R.: Podstawy fotogrametrii. Oficyna wydawnicza Politechniki Warszawskiej, 2011. 3. SZCZEPKOWSKI M.: Drony - teoria i praktyka. Kabe, 2016.
	Supplementary literature	1. ADAMCZYK J., BĘDKOWSKI K.: Metody cyfrowe w teledetekcji. Wydawnictwo SGGW, Warszawa 2007.
	eResources addresses	
Example issues/ example questions/ tasks being completed		
Work placement	Not applicable	

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