



## Subject card

Subject name and code	Photogrammetry , PG_00061763						
Field of study	Geodesy and Cartography						
Date of commencement of studies	October 2023		Academic year of realisation of subject			2024/2025	
Education level	first-cycle studies		Subject group			Obligatory subject group in the field of study 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	2		Language of instruction			Polish	
Semester of study	3		ECTS credits			4.0	
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. Katarzyna Bobkowska				
	Teachers						
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	15.0	15.0	0.0	60
	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	60		9.0		31.0	100
Subject objectives	<ol style="list-style-type: none"><li>1. Introduction to the definition of photogrammetry, its applications, methods, and products.</li><li>2. Introduction to the technology of orthophotomap development and its use.</li><li>3. Development of digital 3D models using photogrammetric techniques and methods.</li><li>4. Use of photogrammetry products for the analysis of engineering structures.</li></ol>						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K6_W07] has a well-established knowledge and understands concepts in the field of engineering geodesy including the use of calculations and measurements methods carried out with the use of geodetic instruments and photogrammetric and remote sensing technologies related to geodetic support for investment, surveying and inventory measurements and photogrammetry with remote sensing	The student is familiar with photogrammetric technologies and can identify their applications.	[SW1] Assessment of factual knowledge
	[K6_U12] can perform topographic-bathymetric maps of ports, wharf and coastal areas, and can interpret marine charts and maps of coastal regions	The student is able to determine the x, y, z coordinates of points based on photogrammetric measurements.	[SU4] Assessment of ability to use methods and tools
	[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	The student is able to independently plan and execute projects in the field of photogrammetric measurements.	[SU1] Assessment of task fulfilment
	[K6_U08] can use modern measurement technologies to solve common tasks in 3D modeling	The student is able to create a 3D model of an object.	[SU1] Assessment of task fulfilment
Subject contents	1. Definition and history of photogrammetry.2. Advantages and disadvantages of using photogrammetric techniques and methods.3. Principles of central and orthogonal projection.4. Geometric principles applied in photogrammetric task development.5. Cameras used in photogrammetry.6. Stereoscopic vision.7. Orthophotomap development.8. 3D model development.9. Applications of photogrammetry in other fields.10. Analysis of photogrammetry products.		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Exam	60.0%	50.0%
	Project Reports	80.0%	12.5%
	Lab Reports	80.0%	12.5%
	Test 2	60.0%	12.5%
	Test 1	60.0%	12.5%
Recommended reading	Basic literature	1.Kurczyński Z., Preuss P.: Podstawy fotogrametrii, Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa 2003, 2.Kurczyński Z.: Lotnicze i satelitarne obrazowanie Ziemi; Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa 2006, 3. Kurczyński Z., Fotogrametria, PWN, Warszawa 2014,	
	Supplementary literature	1. Bernasik J.: Wykłady z fotogrametrii i teledetekcji	
	eResources addresses	Adresy na platformie eNauczanie:	
Example issues/ example questions/ tasks being completed	1. Definition and history of photogrammetry.2. Advantages and disadvantages of using photogrammetric techniques and methods.3. Principles of central and orthogonal projection.4. Geometric principles applied in photogrammetric task development.5. Cameras used in photogrammetry.6. Stereoscopic vision.7. Orthophotomap development.8. 3D model development.9. Applications of photogrammetry in other fields.10. Analysis of photogrammetry products.		
Work placement	Not applicable		

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