GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Photogrammetry , PG_00044805		
Field of study	Geodesy and Cartography		
Date of commencement of studies	October 2022	Academic year of realisation of subject	2023/2024
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	exam
Conducting unit	Department of Geodesy -> Faculty of Civil and Environmental Engineering		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Katarzyna Bobkowska	
	Teachers	dr inż. Katarzyna Bobkowska	

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	
	1. Acquaintance with the definition of photogrammetry, its application, methods and products.2. Acquaintance with the development of technology and its use orthophotomaps.3. Development of digital 3D models using photogrammetric techniques and methods.4. The use of photogrammetry products for the needs of engineering objects analysis.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[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 coordinates of x,y,z points based on photogrammetric measurements.	[SU4] Assessment of ability to use methods and tools
[K6_U08] can use modern measurement technologies to solve common tasks in 3D modeling	The student is able to make a 3D model of the object	[SU1] Assessment of task fulfilment
[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 knows the photogrammetric technologies and is able to indicate their application	[SW1] Assessment of factual knowledge
[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	Student is able to independently plan and implement projects in the field of photogrammetric measurements.	[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 used when developing the photogrammetric task.5. Cameras used in photogrammetry.6. Stereoscopic vision.7. Development of orthophotomap.8. Development of the 3D model9. Application 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
	60.0%	50.0%
	60.0%	12.5%
	80.0%	12.5%
	80.0%	12.5%
	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 used when developing the photogrammetric task.5. Cameras used in photogrammetry.6. Stereoscopic vision.7. Development of orthophotomap.8. Development of the 3D model9. Application of photogrammetry in other fields.10. Analysis of photogrammetry products.
Work placement	Not applicable