



Subject card

Subject name and code	, PG_00066182						
Field of study	Geodesy and Cartography						
Date of commencement of studies	February 2025	Academic year of realisation of subject				2024/2025	
Education level	second-cycle studies	Subject group					
Mode of study	Full-time studies	Mode of delivery				at the university	
Year of study	1	Language of instruction				Polish	
Semester of study	1	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. Emilia Miszewska				
	Teachers						
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	15.0	15.0	0.0	45
	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	45	0.0		0.0	45	
Subject objectives	The aim of the course " <i>Fundamentals of BIM Modeling</i> " is to familiarize students with the concept of Building Information Modeling (BIM) and its application in the context of engineering surveying. Students will acquire knowledge and skills enabling them to effectively participate in design, construction, and operation processes of building structures using BIM technology						
Learning outcomes	Course outcome		Subject outcome			Method of verification	
	[K7_U06] creates solutions to complex and unstructured problems taking into account the variability of the environment by synthesising information from different sources, using analytical and simulation methods		The student develops solutions to complex and unstructured engineering problems in the field of geodesy and cartography, considering environmental variability, by synthesizing information from various sources, including spatial data and BIM models, using advanced analytical and simulation methods.			[SU1] Assessment of task fulfilment [SU2] Assessment of ability to analyse information [SU4] Assessment of ability to use methods and tools	
	[K7_W05] has a well-established knowledge of analytical methods and surveying techniques necessary for creating and solving a variety of problems in geodesy and cartography		The student possesses well-established knowledge of analytical methods and geodetic measurement techniques necessary for modeling, analysis, and solving complex engineering problems in the field of geodesy and cartography, with particular emphasis on their application in the BIM (Building Information Modeling) environment.			[SW3] Assessment of knowledge contained in written work and projects	
Subject contents	Lecture content: 1. Principles of dimensioning 2. Inventory 3. Bill of quantities 4. Introduction to BIM 5. Modern construction processes tailored to the digital society 6. Effective exchange of information between all participants of the investment process 7. Practice of investment implementation in the BIM methodology 8. BIM in the use of fixed assets 9. BIM in infrastructure projects						
Prerequisites and co-requisites							

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Licensed work 5	60.0%	45.0%
	Licensed work 4	60.0%	25.0%
	Licensed work 3	60.0%	10.0%
	Licensed work 2	60.0%	10.0%
	Licensed work 1	60.0%	10.0%
Recommended reading	Basic literature	<p>Eastman, C., Teicholz, P., Sacks, R., Liston, K. <i>BIM Handbook: A Guide to Building Information Modeling for Owners, Designers, Engineers, Contractors, and Facility Managers</i>, Wiley.</p> <p>Książek, P. (ed.)</p> <p><i>BIM in Practice Standards, Implementation, Application Examples</i>, PWN Publishing.</p> <p>Stachura, M., Bielecka, E. (eds.) <i>Geoinformation and Engineering Surveying in BIM Processes</i>, Publishing House of Warsaw University of Technology, 2021.</p>	
	Supplementary literature	<p>Volk, R., Stengel, J., Schultmann, F. <i>Building Information Modeling (BIM) for existing buildings Literature review and future needs</i>, Automation in Construction, 2014.</p> <p>Nowacki, T., Kaźmierczak, H. <i>Engineering Surveying</i>, PWN Scientific Publishing.</p> <p>Flis, J. (ed.) <i>Fundamentals of Building Information Modeling (BIM)</i>, UTP University Publishing.</p> <p>Industry standards and guidelines, such as:</p> <ul style="list-style-type: none"> • ISO 19650 (Information management using BIM), • buildingSMART Data Dictionary, • National and institutional BIM implementation guidelines (e.g., by the Polish Ministry of Development and Technology). 	
	eResources addresses	<p>Adresy na platformie eNauczanie:</p> <p>Podstawy i modelowanie w BIM - Moodle ID: 42965 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=42965</p>	
Example issues/ example questions/ tasks being completed	<ul style="list-style-type: none"> • Making a supplement of the 3rd plan, • Drawing the architectural and construction project in the appropriate scale • Making the dimensions of the indicated object • Making an inventory • Making the indicated object in the BIM environment 		
Work placement	Not applicable		

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