



Subject card

Subject name and code	BIM Fundamentals, PG_00050142						
Field of study	Environmental Engineering						
Date of commencement of studies	February 2023	Academic year of realisation of subject			2023/2024		
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	2	ECTS credits			3.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Katedra Wytrzymałości Materiałów -> Faculty of Civil and Environmental Engineering						
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Bożena Kotarska-Lewandowska					
	Teachers	dr inż. Dawid Bruski dr inż. Bożena Kotarska-Lewandowska					
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	15.0	0.0	0.0	0.0	45
	E-learning hours included: 0.0						
Address on the e-learning platform: https://enauczanie.pg.edu.pl/moodle/course/view.php?id=1937							
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	2.0	8.0	55		
Subject objectives	The aim of the course is to equip students in: - knowledge of the basics of Building Information Modeling (BIM) technology in design and implementation practice - skills of making a simplified multi-branch (architecture, structures, installations) BIM model - skills of processing BIM model data for basic analysis, collation, projections, visualization and animation.						
Learning outcomes	Course outcome	Subject outcome	Method of verification				
Subject contents	<p>Lectures:</p> <p>Introduction to BIM. Basic BIM terminology. BIM software overview. Software interoperability / BIM models. Open standards for data models. Rules for creating an object-oriented BIM model. Objects, object families, object classification, constraints, relations, parameters. Modification of the object's features. LOD levels. Standards and legislation - Poland and Europe.</p> <p>Exercises:</p> <p>Modeling of the building in the Revit environment. Defining families of objects, parameterization of family elements. Application of created families in the project.</p> <p>Modeling of the terrain and the surrounding of the building, data exchange with GIS systems. Creating visualizations and animations.</p> <p>Control of BIM models, collision detection. Data export / import from / to the BIM model. Conceptual models, variant models. Other analyzes based on BIM models. Documentation generated on the basis of BIM models, data import / export from / to CAD programs.</p> <p>The use of point clouds from laser scanning to create BIM models.</p>						

Prerequisites and co-requisites	Knowledge about Computer Aided Design (CAD)		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
		50.0%	60.0%
		50.0%	40.0%
Recommended reading	Basic literature	Autodesk - Revit, dokumentacja on-line, Autodesk - Navisworks, dokumentacja on-line Kaszniak D., Magiera J., Wierzowiecki P. 2017: <i>BIM w praktyce. Standardy, wdrożenie, case study</i> . Warszawa: PWN. Tomana A. 2016. <i>BIM - Innowacyjna technologia w budownictwie. Podstawy, standardy, narzędzia</i> . Kraków: PWB MEDIA Zdziałowski Spółka Jawna.	
	Supplementary literature	Eastman, C., Teicholz, P., Sacks, R., & Liston, K. 2011. <i>BIM handbook: A guide to building information modeling for owners, managers, designers, engineers and contractors</i> . Indianapolis, IN: Wiley.	
	eResources addresses	Adresy na platformie eNauczenie: Podstawy BIM (2023-2024 zima) - Moodle ID: 30529 https://enauczenie.pg.edu.pl/moodle/course/view.php?id=30529	
Example issues/ example questions/ tasks being completed	A group project of a small public facility. Model BIM, analysis, visualizations and animations.		
Work placement	Not applicable		