



## Subject card

Subject name and code	, PG_00050143						
Field of study	Civil 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. Dawid Bruski					
	Teachers						
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						
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 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, summaries, visualization and animation.						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	[K7_W13] has knowledge on state of the art methods on knowledge acquisition, filtration, processing and analysis	The student has knowledge of BIM methodology. Knows the principles of creating BIM models and using data to create analyzes and summaries.			[SW2] Assessment of knowledge contained in presentation		
	[K7_U06] is able to choose proper tools (measuring, analytical or numerical) to solve engineering problems, to acquire, filtrate, proces and analyse data	The student can build an object model in the Revit. The student can define computational models for computer analysis of structures as well as loads and load combinations. Can create a simple model of ventilation and sewage.			[SU1] Assessment of task fulfilment		
Subject contents	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. Modeling of the building in the Revit environment. Defining families of objects, parameterization of family elements. Application of created families in the project. Modeling of the terrain and the surrounding of the building. Creating visualizations and animations. Analytical model, adding load. Ventilation and sanitary installations. Control of BIM models, collision detection. Data export / import from / to the BIM model. Variant models. Data import / export from / to CAD programs.						
Prerequisites and co-requisites	Knowledge about Computer Aided Design (CAD)						
Assessment methods and criteria	Subject passing criteria	Passing threshold			Percentage of the final grade		
	Presentation	60.0%			40.0%		
	Project	60.0%			60.0%		

Recommended reading	Basic literature	<p>Anger A., Łaguna P., Zamara B.: <i>BIM dla managerów</i>. PWN, 2021</p> <p>Kacprzyk Z., Werner W. A.: <i>Procedury inwestycyjno-budowlane. Podstawy BIM</i>. POLCEN Sp. z o.o., 2019.</p> <p>Kaszniak D., Magiera J., Wierzowiecki P.: <i>BIM w praktyce</i>. PWN, Warszawa, 2018.</p>
	Supplementary literature	Tomana A.: <i>BIM Innowacyjna technologia w budownictwie. Podstawy. Standardy. Narzędzia</i> . Kraków 2016.
	eResources addresses	<p>Podstawowe</p> <p><a href="https://www.uzp.gov.pl/baza-wiedzy/zrownowazone-zamowienia-publiczne/bim-modelowanie-danych-budowlanych/bim-standard-pl">https://www.uzp.gov.pl/baza-wiedzy/zrownowazone-zamowienia-publiczne/bim-modelowanie-danych-budowlanych/bim-standard-pl</a> - BIM Standard PL</p> <p>Adresy na platformie eNauczanie:</p> <p>Podstawy BIM (2023-2024 zima) - Moodle ID: 30529</p> <p><a href="https://enauczanie.pg.edu.pl/moodle/course/view.php?id=30529">https://enauczanie.pg.edu.pl/moodle/course/view.php?id=30529</a></p>
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	

Document generated electronically. Does not require a seal or signature.