

## 。 GDAŃSK UNIVERSITY OF TECHNOLOGY

## Subject card

Subject name and code	, PG_00050143							
Field of study	Civil Engineering							
Date of commencement of studies	February 2025		Academic year of realisation of subject			2025/2026		
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	Department of Mechanics of Materials and Structures -> Faculty of Civil and Environmental Engineering -> Wydziały Politechniki Gdańskiej							
Name and surname	Subject supervisor		dr inż. Dawid Bruski					
of lecturer (lecturers)	Teachers							
Lesson types and methods	Lesson type	Lecture	Tutorial	Laboratory	Project	oject Seminar		SUM
of instruction	Number of study hours	30.0	15.0	0.0	0.0	0.0		45
	E-learning hours inclu	ided: 0.0	-					
Learning activity and number of study hours	Learning activity	Participation ir classes includ plan	n didactic ed in study	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					ication		
	[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	Anger A., Łaguna P., Zamara B.: <i>BIM dla managerów</i> . PWN, 2021					
		Kacprzyk Z., Werner W. A.: <i>Procedury inwestycyjno-budowlane.</i> <i>Podstawy BIM</i> . POLCEN Sp. z o.o., 2019.					
		Kasznia D., Magiera J., Wierzowiecki P.: <i>BIM w praktyce</i> . PWN, Warszawa, 2018.					
Sup	Supplementary literature	Tomana A.: BIM Innowacyjna technologia w budownictwie. Podstawy. Standardy. Narzędzia. Kraków 2016.					
	eResources addresses	Basic					
		https://www.uzp.gov.pl/baza-wiedzy/zrownowazone-zamowienia- publiczne/bim-modelowanie-danych-budowlanych/bim-standard-pl - BIM Standard PL					
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						

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