



Subject card

Subject name and code	, PG_00060049						
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			Obligatory subject group in the field of study		
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			2.0		
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. Wojciech Migda				
	Teachers		dr inż. Wojciech Migda				
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	30.0	0.0	0.0	30
	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	30		5.0		20.0	55
Subject objectives	The aim of the course is to equip students with: - knowledge of the basics of Building Information Modeling (BIM) technology in design and implementation practice in the field of HVAC systems - the ability to implement an integrated design (architecture, ventilation) of the BIM model - the ability to filter and process BIM model data in order to obtain basic analyzes, summaries, projections, visualizations and animations						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	K7_U06	Designs and analyses the projects			[SU1] Assessment of task fulfilment [SU5] Assessment of ability to present the results of task		
	[K7_U01] can obtain information from literature, databases and other sources; can integrate the obtained information, interpret and critically evaluate them, draw conclusions, and formulate and comprehensively justify the opinions	The student creates and uses technical documentation, draws conclusions, presents his work results			[SU4] Assessment of ability to use methods and tools [SU2] Assessment of ability to analyse information		
	K7_W05	The student considers responsibility in engineering action, reliability of his results and their adaptation			[SW1] Assessment of factual knowledge		
Subject contents	Introduction to BIM technology. BIM models, basic concepts: LOD, LOI, BIM nD. Teamwork, file sharing, tools for Collaboration. Revit environment, data hierarchy, object systematics, parameter structure. Design template and view templates. Work with external Revit / IFC models and with HVAC modeling tools. Preparation of an analytical model of spaces, zones, statements. Verification of the analytical model, calculation and analysis of the report, system inspection, system color legends. Creation and modification of lists. Clash checking and resolution.						
Prerequisites and co-requisites	Knowledge of Computer Aided Design (CAD) systems.						
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.: BIM dla managerów, PWN, 2021 Kaszniak D.: BIM w praktyce. Standardy. Wdrożenie. Case Study, PWN Warszawa, 2018. Lipska B.: Projektowanie wentylacji i klimatyzacji : urządzenia i przewody, Wydawnictwo Politechniki Śląskiej, 2018 Tomana A.: BIM Innowacyjna technologia w budownictwie. Podstawy, standardy, narzędzia, PWB MEDIA, Warszawa, 2016 Autodesk Revit - instrukcja użytkownika. BIM Standard PL, https://www.uzp.gov.pl/_data/assets/pdf_file/0024/43449/BIM-Standard-wersja-opublikowana-2.0.pdf
	Supplementary literature	Autodesk Revit 2022 MEP Fundamentals, ASCENT, 2021
	eResources addresses	Adresy na platformie eNauczanie:
Example issues/ example questions/ tasks being completed	Team design of a ventilation system for a sport hall / public facility.	
Work placement	Not applicable	