GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Integrated design, PG_00060049		
Field of study	Environmental Engineering		
Date of commencement of studies	February 2026	Academic year of realisation of subject	2026/2027
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	Department of Mechanics of Materials and Structures -> Faculty of Civil and Environmental Engineering -> Faculties of Gdańsk University of Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Wojciech Migda	
	Teachers		

Lesson types

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_W05	The student considers responsibility in engineering action, reliability of his results and their adaptation	[SW1] Assessment of factual knowledge
[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 comprehesively justify the opinions	The student creates and uses technical documentation, draws conclusions, presents his work results	[SU2] Assessment of ability to analyse information [SU4] Assessment of ability to use methods and tools
K7_U06	Designs and analyses the projects	[SU5] Assessment of ability to present the results of task [SU1] Assessment of task fulfilment

Subject contents

Course content – laboratory
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
project	60.0%	60.0%
presentation	60.0%	40.0%

Recommended reading	Basic literature	Anger A., Łaguna P., Zamara B.: BIM dla managerów, PWN, 2021 Kasznia 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	
Example issues/ example questions/ tasks being completed	Team design of a ventilation system for a sport hall / public facility.	
Practical activites within the subject	Not applicable	

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