GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Building Information Modeling, PG_00069952		
Field of study	Real Estate 5.0		
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 Subject group related to scientific research 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	4.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Department of Geodesy -> Faculty of Civil and Environmental Engineering -> Faculties of Gdańsk University of Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Emilia Miszewska	
	Teachers	dr inż. Wojciech Migda dr inż. Emilia Miszewska	

Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	30.0	0.0	0.0	60
	E-learning hours included: 0.0						
	eNauczanie source address: https://enauczanie.pg.edu.pl/2025/course/view.php?id=7557						

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	60	4.0	36.0	100

Subject objectives	To introduce students to the fundamentals of Building Information Modeling (BIM) and the principles of information management throughout the real estate life cycle, with particular emphasis on the use of Common Data Environments (CDE), BIM standards, and digital tools supporting investment project delivery and property operation and management.

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K7_W05] possesses advanced interdisciplinary knowledge of procedures, methods, and theories related to real estate trading, property management, and operation, as well as other processes characteristic of the functioning of the real estate market. The student understands the organizational and legal conditions governing the professional practice of real estate agents, property managers, and other specialists operating within the real estate sector.	Knows and understands the principles, standards, and methods of information management using Building Information Modeling (BIM) throughout the real estate life cycle, with particular emphasis on Common Data Environments (CDE) and the application of BIM in property management and facility operations.	[SW3] Assessment of knowledge contained in written work and projects
	[K7_U05] is able to manage real estate assets throughout their entire life cycle, applying knowledge in the areas of brokerage, investment, and asset management. The student can utilize modern tools and technologies (including digital solutions, PropTech, and BIM), incorporate the principles of sustainable development, ESG, wellbeing, and green certifications, as well as conduct due diligence analyses and effectively implement investment projects.	Is able to use BIM technologies and digital tools to manage information throughout the real estate life cycle, particularly in the areas of document management, data exchange, and supporting property management and facility operations.	[SU4] Assessment of ability to use methods and tools

Subject contents	Course content – lecture BLOCK I. Introduction to BIM and Information Management • What is BIM? • BIM as an information management process • Key definitions and concepts • OpenBIM and interoperability • Changes in the workflows of different stakeholders BLOCK II. BIM Throughout the Real Estate Life Cycle • BIM at different stages of the investment process • Exchange Information Requirements (EIR) • BIM Execution Plan (BEP) • BIM standards and regulations • Perspectives of investors, owners, and operators • Project Information Model (PIM) • Benefits of BIM implementation BLOCK III. Digital Tools and Data Management Environment • Common Data Environment (CDE) • Document management • BIM model management • Workflows and document circulation • Version control and change history • Data exchange and collection • Legal aspects of using a CDE BLOCK IV. BIM in Property Management and Facility Management • Facility Management and BIM

- Asset Information Model (AIM)
- Equipment and asset management
- Technical inspections
- Warranties and maintenance services
- Space management
- Renovation and refurbishment management
- BIM integration with CAFM/CMMS systems
- BIM, IoT, and Digital Twins

BLOCK V. Practical Workshops Using Dalux Tools

- Hands-on workshops using Dalux software

Course content – laboratory

- **Introduction to Autodesk Revit** – software interface, basic functions, and BIM project organization.
- **Fundamentals of Working with Building Information Models** – model viewing, navigation, and identification of building elements.
- **Fundamentals of BIM Modeling** – creation and modification of selected building elements.
- **Information Management in BIM Models** – element properties, parameters, schedules, and data extraction.
- **Application of BIM Models in Property Management and Facility Operations** – using BIM models to support property management and building operation processes.

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Lecture – Attendance	60.0%	50.0%
Laboratorium - projekt	60.0%	50.0%

Recommended reading

Basic literature

- ISO 19650 (series). Organization and digitization of information about buildings and civil engineering works, including building information modelling (BIM) — Information management using building information modelling.
- ISO 16739-1:2024. Industry Foundation Classes (IFC) for data sharing in the construction and facility management industries — Part 1: Data schema. 3.
- ISO 7817-1:2024. Building information modelling — Level of information need — Part 1: Concepts and principles.
- ISO 12911:2023. Organization and digitization of information about buildings and civil engineering works, including building information modelling (BIM) — Framework for specification of BIM implementation.

	Supplementary literature	• BIMForum. (2025). Level of Development Specification (Parts I–II, 2025 ed.). BIMForum. • Kasznia, D., Magiera, J., & Wierzowiecki, P. (2020). BIM w praktyce. Standardy, wdrożenie, case study [BIM in practice: Standards, implementation, and case studies]. Wydawnictwo Naukowe PWN. • Teicholz, P. (Ed.). (2013). BIM for Facility Managers. John Wiley & Sons.
	eResources addresses	
Example issues/ example questions/ tasks being completed	• Discussion of the fundamental principles of BIM and its application throughout the real estate life cycle. • Characteristics of the Common Data Environment (CDE) and its role in information management. • Discussion of the potential applications of BIM models in property management and facility operations. • Development of a simple building information model using Autodesk Revit, including identification and analysis of the data contained in the model.	
Practical activites within the subject	Not applicable	

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