GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	, PG_00066182		
Field of study	Geodesy and Cartography		
Date of commencement of studies	February 2026	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	1	ECTS credits	3.0
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		

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	15.0	0.0	15.0	15.0	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 *"Fundamentals of BIM Modeling"* is to familiarize students with the concept of Building Information Modeling (BIM) and its application in the context of engineering surveying. Students will acquire knowledge and skills enabling them to effectively participate in design, construction, and operation processes of building structures using BIM technology

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K7_U06] creates solutions to complex and unstructured problems taking into account the variability of the environment by synthesising information from different sources, using analytical and simulation methods	The student develops solutions to complex and unstructured engineering problems in the field of geodesy and cartography, considering environmental variability, by synthesizing information from various sources, including spatial data and BIM models, using advanced analytical and simulation methods.	[SU4] Assessment of ability to use methods and tools [SU2] Assessment of ability to analyse information [SU1] Assessment of task fulfilment
[K7_W05] has a well-established knowledge of analytical methods and surveying techniques necessary for creating and solving a variety of problems in geodesy and cartography	The student possesses well-established knowledge of analytical methods and geodetic measurement techniques necessary for modeling, analysis, and solving complex engineering problems in the field of geodesy and cartography, with particular emphasis on their application in the BIM (Building Information Modeling) environment.	[SW3] Assessment of knowledge contained in written work and projects

Subject contents

Course content – lecture
Lecture content:
1. Principles of dimensioning
2. Inventory
3. Bill of quantities
4. Introduction to BIM
5. Modern construction processes tailored to the digital society
6. Effective exchange of information between all participants of the investment process
7. Practice of investment implementation in the BIM methodology
8. BIM in the use of fixed assets
9. BIM in infrastructure projects

Prerequisites and co-requisites

<table>
<tr><td>Assessment methods and criteria</td><td colspan="2"><table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td>Licensed work 2</td><td>60.0%</td><td>10.0%</td></tr>
<tr><td>Licensed work 3</td><td>60.0%</td><td>10.0%</td></tr>
<tr><td>Licensed work 4</td><td>60.0%</td><td>25.0%</td></tr>
<tr><td>Licensed work 5</td><td>60.0%</td><td>45.0%</td></tr>
<tr><td>Licensed work 1</td><td>60.0%</td><td>10.0%</td></tr>
</table></td></tr>
<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td>Eastman, C., Teicholz, P., Sacks, R., Liston, K.
BIM Handbook: A Guide to Building Information Modeling for Owners, Designers, Engineers, Contractors, and Facility Managers, Wiley.

Książek, P. (ed.)

BIM in Practice Standards, Implementation, Application Examples, PWN Publishing.

Stachura, M., Bielecka, E. (eds.)
Geoinformation and Engineering Surveying in BIM Processes, Publishing House of Warsaw University of Technology, 2021.</td></tr>
<tr><td>Supplementary literature</td><td>Volk, R., Stengel, J., Schultmann, F.
Building Information Modeling (BIM) for existing buildings Literature review and future needs, Automation in Construction, 2014.

Nowacki, T., Kaźmierczak, H.
Engineering Surveying, PWN Scientific Publishing.

Flis, J. (ed.)
Fundamentals of Building Information Modeling (BIM), UTP University Publishing.

Industry standards and guidelines, such as:
• ISO 19650 (Information management using BIM),
• buildingSMART Data Dictionary,
• National and institutional BIM implementation guidelines (e.g., by the Polish Ministry of Development and Technology).</td></tr>
<tr><td>eResources addresses</td><td></td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td colspan="2">• Making a supplement of the 3rd plan,
• Drawing the architectural and construction project in the appropriate scale
• Making the dimensions of the indicated object
• Making an inventory
• Making the indicated object in the BIM environment</td></tr>
<tr><td>Practical activites within the subject</td><td colspan="2">Not applicable</td></tr>
</table>

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