GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	, PG_00062074						
Field of study	Civil Engineering						
Date of commencement of studies	October 2022		Academic year of realisation of subject	2023/2024			
Education level	first-cycle studies		Subject group	Obligatory subject group in the field of study			
Mode of study	Part-time studies		Mode of delivery	at the university			
Year of study	2		Language of instruction	Polish Pass 50% - Acad Pass 50% - BIM			
Semester of study	3		ECTS credits	1.0			
Learning profile	general academic profile		Assessment form	assessment			
Conducting unit	Department of Engineering Structures -> Faculty of Civil and Environmental Engineering						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Arkadiusz Sitarski				
	Teachers						
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	10.0	0.0	0.0	10
	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	10		0.0	0.0		10
Subject objectives	Preparing students to produce technical drawings in the subject of General Construction Learning the basics of Building Information Modeling (BIM) technology which will be useful for students in the future design and implementation practice. Learning the basics of developing a simplified BIM model of building (architecture and construction) Learning to create, modify, and process BIM model data to carry out basic analyses and create schedules, floor plans, visualizations, and animations.						

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_W05] Demonstrate knowledge and understanding of research methods (obtaining information, simulations, experimental methods) in the field of civil engineering.	Knowledge of AutoCad and Revit programs	[SW3] Assessment of knowledge contained in written work and projects [SW1] Assessment of factual knowledge
[K6_W04] Knows the rules of descriptive geometry and technical drawing for preparing and reading architectural, construction and geodetic drawings; also with the use of CAD	Creating construction technical drawings in accordance with the guidelines and standards for construction drawings.	[SW1] Assessment of factual knowledge [SW3] Assessment of knowledge contained in written work and projects
[K6_U04] Reads and prepares construction documentation (including drawings, graphic documentation in the CAD environment), efficiently uses maps as well as architectural, construction and geodetic drawings.	Ability to create advanced technical drawings Ability to create simple BIM models	[SU4] Assessment of ability to use methods and tools [SU2] Assessment of ability to analyse information
[K6_W01] Demonstrate knowledge and understanding of mathematics as well as sciences and engineering disciplines underlying civil engineering at a level necessary to achieve the other programme outcomes.	Ability to create graphic models	[SW1] Assessment of factual knowledge

Subject contents

Preparation of selected drawings for the subject General Construction.- composition of drawing elements.- preparing drawings for printing for the adopted scaleSelected advanced elements of the AutoCad program - advanced commandsIntroduction to BIM, basic BIM terminology, BIM software overview, interoperability of software, BIM standards.
Architectural and structural modeling in BIM software (for instance, foundations, walls, columns, slabs).
Modeling of families, parameterization of families, use of families in the project.
Modeling of the terrain and surroundings of the building.
Creating schedules, cost calculations.
Graphics display options, creating visualizations and animations, rendering.
Creating drawing sheets, arrangement of views and schedules on the drawing sheet.

Prerequisites and co-requisites

Knowledge of Geometry and principles of technical drawing.

Knowledge of the basics of operating systems.

Basic knowledge of AutoCad

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Drawing exercises	80.0%	50.0%
Design drawings	60.0%	50.0%

Recommended reading	Basic literature	1. KŁOSOWSKI P.: *Ćwiczenia w kreśleniu rysunków w systemie AutoCAD 2010PL, AutoCAD 2011PL*, Wydawnictwo Politechniki Gdańskiej, Gdańsk 2011. 2. PIKOŃ A.: *AutoCAD 2014PL. Pierwsze kroki,* Helion, 2014. 3. JASKULSKI A.: *AutoCAD 2014/LT2014/360(WS+), Kurs projektowania parametrycznego i nieparametrycznego 2D i 3D.* PWN, 2014. 4. Bednarczyk i inni, *BIM Standard PL*, Warszawa 2020 (dostępny w sieci Internet) 5. Kasznia D., Magiera J., Wierzowiecki P., *BIM w praktyce, standardy, wdrożenia, case study*, Wydawnictwo Naukowe PWN, Warszawa, 2017. 6. Anger A., Łaguna P., Zamara B., *BIM dla managerów*, Wydawnictwo Naukowe PWN, Warszawa, 2021. 7. Tomana A., *Bim Innowacyjna Technologia w Budownictwie. Podstawy, standardy, narzędzia*, Kraków 2015. 8. Autodesk - Revit, dokumentacja on-line, 9. Eastman, C., Teicholz, P., Sacks, R., & Liston, K. 2011. *BIM handbook: A guide to building information modeling for owners, managers, designers, engineers and contractors*. Indianapolis, IN: Wiley
	Supplementary literature	1. PN-EN ISO 13567-1:2002 *Dokumentacja techniczna wyrobu. Organizacja i nadawanie nazw warstwom w systemie CAD*. Część 1: Zasady ogólne. 2. PN-EN ISO 128-21: *Rysunek techniczny. Zasady ogólne przedstawiania*. Część 21: Linie w systemie CAD.
	eResources addresses	Adresy na platformie eNauczanie:
Example issues/ example questions/ tasks being completed	Preparation of a floor plan of the building and details of the building - AutoCad Design of a small facility (e.g. single-family house). BIM model of the facility, schedules, analyses, visualizations and animations.	
Work placement	Not applicable	

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