GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	, PG_00066183		
Field of study	Geodesy and Cartography		
Date of commencement of studies	February 2025	Academic year of realisation of subject	2024/2025
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	2.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Department of Geodesy -> Faculty of Civil and Environmental Engineering		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Paweł Dąbrowski	
	Teachers		

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	15.0	0.0	15.0	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	0.0	0.0	30

Subject objectives

The student learns about the scope of using geodetic practice in the investment process and creating BIM models.

The student learns about the sources of obtaining archival and current geospatial data and learns about their integration.

The student learns about the methods of harmonizing geodetic and cartographic data and methods of converting reference systems.

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	Ability to identify sources of geodetic and cartographic data used in the investment process and creation of a BIM model Ability to obtain spatial data necessary in the investment process Ability to identify spatial data reference systems and their harmonization	[SU3] Assessment of ability to use knowledge gained from the subject
[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	Ability to use current and archiveal data from the state geodetic and cartographic resources Ability to convert spatial data in archival and current reference systems and planar coordinate systems Ability to harmonize spatial data from geodetic documentation and from measurements using terrestrial and airborne laser scanning technology	[SW1] Assessment of factual knowledge [SW3] Assessment of knowledge contained in written work and projects

Subject contents	The role and scope of geodetic work in the investment process and creation of BIM models Legal conditions for performing work for construction and BIM purposes Data structure of spatial information infrastructure Reference systems used in Poland Planar coordinate systems used in Poland Data transformation in different reference systemsWorking with data from the state geodetic and cartographic resource and from the geoportal Terrestrial and airborne laser scanning technology Methods of processing point clouds from terrestrial and airborne laser scanning Creating harmonized spatial data sets for BIM purposes
Prerequisites and co-requisites	Knowledge of vector calculus and matrix algebra Knowledge of mathematical analysis and algebra

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
	50.0%	15.0%
	50.0%	30.0%
	50.0%	40.0%
	50.0%	15.0%

Recommended reading

Basic literature	Books: Kazimierz Czarnecki - Geodezja współczesna, Wydawnictwo Naukowe PWN Idzi Gajderowicz - Odwzorowania kartograficzne, Wyd. Uniwersytetu Warmińsko - Mazurskiego Andrzej Jagielski - Geodezja II, Wydawnictwo Stabil
Supplementary literature	Jan Panasiuk, Jerzy Balcerzak - Wprowadzenie do kartografii matematycznej, Oficyna Wyd. PPW Paweł Pędzich - Podstawy odwzorowań kartograficznych z aplikacjami komputerowymi, Oficyna Wyd. PPW
eResources addresses	Adresy na platformie eNauczanie:

Example issues/ example questions/ tasks being completed	Indication of the procedure for obtaining and transforming spatial data to a specific reference system Indication of the procedure for harmonizing two-dimensional and three-dimensional data
Work placement	Not applicable

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