GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Cartography, PG_00061746		
Field of study	Geodesy and Cartography		
Date of commencement of studies	October 2024	Academic year of realisation of subject	2025/2026
Education level	first-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	2	Language of instruction	Polish
Semester of study	4	ECTS credits	8.0
Learning profile	general academic profile	Assessment form	exam
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. Paweł Wysocki	
	Teachers		

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	30.0	0.0	30.0	30.0	0.0	90

E-learning hours included: 0.0

eNauczanie source addresses:

Moodle ID: 4713 Kartografia 2025_26
https://enauczanie.pg.edu.pl/2025/course/view.php?id=4713

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	90	12.0	98.0	200

Subject objectives

To familiarize students with the mathematical structure of the Earth's surface mappings used in the state coordinate systems, principles of the maps edition, cartographic generalization, qualitative and quantitative methods of cartographic representations on the example of the socio-economic issues.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_W05] knows and understands the principles in the field of geomatics, mathematical and thematical cartography, including reference systems and coordinate frames associated with cartographic elaborations, and has knowledge about establishing and modernizing geodetic networks, taking into account the current legal status	The student knows the mathematical construction of state coordinate systems, division into sheets depending on the scale.	[SW1] Assessment of factual knowledge
[K6_U07] can use reference systems and coordinate frames according to the character of cartographic studies, create a thematic map and apply in practice cartographic generalization	The student knows the principles of cartographic generalization, among others edits a map in the scale of 1: 25,000 on the basis of the source material prepared in the scale of 1: 10,000. The student is able to prepare a thematic map concerning a specific issue. Can calculate the emblem of a map based on the coordinates of a point on a given sheet.	[SU1] Assessment of task fulfilment [SU4] Assessment of ability to use methods and tools

Subject contents

Course content – lecture

Spherical trigonometry. Rotational ellipsoid and sphere as reference surfaces. Ellipsoids: Krasowski, GRS-80, WGS-84. Radii of curvature Map definition. Concepts, functions and forms of the map. Map scale. Cartographic coordinate systems. Geographic grid. The concept of cartographic projection. Types and division of cartographic projections. Projection distortions. Gauss-Kruger projection. Azimuthal, conical and cylindrical projections. State spatial reference systems. Systems "1942", "1965", "GUGiK-80", "2000", "1992". UTM system. Topographic maps. Map editing rules. Cartographic signs system. Cartographic generalization. Cartographic methods of presentation: cartograms, cartodiagrams, range method, signature, isolines. Thematic cartography.

Course content – laboratory

Tasks related to:

- spherical trigonometry,
- coordinate systems on a sphere,
- radii of curvature of an ellipsoid of revolution,
- meridian arc length of an ellipsoid of revolution,
- Gauss-Kruger projection.

Course content – project

Designations (sheet identifiers) of topographic maps.

Determining the map sheet identifier based on the coordinates of a point located on a given sheet.

Examples of cartographic generalization.

Compilation of a map fragment at a scale of 1:25,000 based on source material prepared at a scale of 1:10,000.

A thematic map of a specified subject.

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
final exam	50.0%	50.0%
mid-term tests	50.0%	30.0%
assignments and projects	50.0%	20.0%

Recommended reading

Basic literature

1. Saliszczew K., General cartography, PWN Scientific Publishing House, Warsaw 2003.
2. Ratajski Lech, Methodology of socio-economic cartography, Warsaw 1989.
3. Gajderowicz I., Cartographic Projections. The essentials , UWM Publishing House, Olsztyn, 2009.
4. Różycki J., Mathematical cartography. State Publishing House, Warsaw 1978
5. Pasławski J., (ed.) Introduction to cartography and topography, Publisher: NOWA ERA 2006.

Supplementary literature

1. Regulation of the Council of Ministers of 15 October 2012 on the national spatial reference system, as amended
2. Regulation of the Minister of Development, Labour and Technology of 27 July 2021 on the database of topographic objects and the database of general geographic objects, as well as standard cartographic coverage

eResources addresses

Example issues/ example questions/ tasks being completed	Division and classification of cartographic projections Cartographic projections used in Poland Calculation of the meridian arc length. Projections distortions. State spatial references system Coordinate systems 2000 and 1992 Topographic map symbol. Editing of the map on a scale of 1: 25,000 based on source material prepared on a scale of 1: 10,000. Thematic maps
Practical activites within the subject	Not applicable

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