University of Gdańsk

Subject card

Subject name and code	Geodesy and Cartography - lecture, PG_00201414		
Field of study	Water Management and Protection of Water Resources		
Date of commencement of studies	October 2026	Academic year of realisation of subject	2026/2027
Education level	Bachelor's 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	1	Language of instruction	Polish polish
Semester of study	2	ECTS credits	1.0
Learning profile	practical	Assessment form	exam
Conducting unit	Geographic Information System (GIS) Laboratory -> Faculty of Oceanography and Geography -> Rector		
Name and surname of lecturer (lecturers)	Subject supervisor	dr Maciej Markowski	
	Teachers		

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	15.0	0.0	0.0	0.0	0.0	15

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	15	1.0	9.0	25

Subject objectives

Acquisition of theoretical and practical knowledge in the field of geodesy and cartography. Learning basic techniques for performing geodetic measurements using appropriate guidelines in geodesy. Gaining knowledge in using topographic maps and the main map of the country. Familiarization with data sources from map services.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[GWOZWL3-K05] The student has the ability take responsibility for the safety of their own work and that of others, dealing with emergencies, exercising caution in the laboratory and in the field, responsibility for entrusted equipment and apparatus.	Student is ready to fulfill social obligations and co-organize activities for the benefit of the community. Contents: A.1-A.9.	[SK4] test/exam - oral or written
[GWOZWL3-W04] The student is familiar with advanced research techniques, methods and tools currently used in water management and the protection of water resources, in both the natural and social sciences, including advanced statistical and IT tools enabling the description, modelling and interpretation of data concerning phenomena and processes occurring in the aquatic environment, as well as tools for describing relationships within socio-ecological systems.	Student knows and understands the theories, methods, and techniques for data acquisition used in geodesy and cartography, which allow for describing and examining the complex relationships present in water management and water resource protection, both in the natural and social sciences. This knowledge enables the use of basic statistical and information technology tools in processing and interpreting data related to phenomena and processes occurring in the aquatic environment, explaining the relationships within socio-ecological systems. Contents: A.1-A.9.	[SW4] test/exam - oral or written

Subject contents	A.1 Geodesy and cartography - definitions, tasks, and classifications. Understanding the concepts of map and topography. A.2 Shape and size of the Earth. Reference surfaces. Theory of cartographic projections. A.3 Basic coordinate systems on the plane and in space used in geodesy and cartography. Right-handed flat rectangular coordinate system, flat polar, geographic, geodetic, and orthocartesian geocentric systems. A.4 Field measurements. Units of measurement. Situational and elevation measurements. A.5 National spatial reference systems used in Poland. Geodetic reference systems, flat rectangular coordinate systems, and elevation systems. Sheet division of maps in the PL-1992 and PL-2000 coordinate systems. A.6 Elements of a geographical map. Mathematical framework, auxiliary markings, supplementary data. A.7 Topographic maps. A.8 Main map of the country. A.9 Selected map services in Poland.
Prerequisites and co-requisites	

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
exam	51.0%	100.0%

Recommended reading

Basic literature	- Jagielski A., 2019/2014, Geodezja cz. I, Wyd. Geodpis, Kraków;- Jagielski A., 2014, Geodezja cz. II, Wyd. Geodpis, Kraków; - Pasławski J. (red.), 2010, Wprowadzenie do kartografii i topografii, Wydawnictwo Nowa Era Redakcja Kartograficzna, Wrocław. - Rozporządzenie Rady Ministrów z dnia 15 października 2012 r. w sprawie Państwowego systemu odniesień przestrzennych (Dz. U. z 14.11.2012 r., Nr 0, poz. 1247);- Ratajski L., 1989, Metodyka kartografii społeczno-gospodarczej, PPWK, Warszawa-Wrocław.
Supplementary literature	- Jagielski A., 2017, Rysunki geodezyjne z elementami topografii i kartografii, Wyd. Geodpis, Kraków. - Bajkiewicz-Grabowska E., Markowski M., Lemańczyk K., 2016, Application of geoinformation techniques to determine zones of sediment resuspension induced by wind waves in lakes (using two lakes from Northern Poland as examples) , Limnological Review 1/2016.
eResources addresses	

Example issues/ example questions/ tasks being completed	What is a topographic map and what information does it present? What are the basic coordinate systems used in geodesy and cartography? What are map projections and why are they used?
Work placement	Not applicable

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