

Subject card

Subject name and code	Copy Geodesy and cartography - lecture, PG_00091492						
Field of study	Water Management and Protection of Water Resources						
Date of commencement of studies	October 2025		Academic year of realisation of subject		2025/2026		
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		
Semester of study	2		ECTS credits		1.0		
Learning profile	practical		Assessment form				
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		5.0		10.0	30
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-W04] research techniques, methods and tools currently used in water management and protection of water resources both in the field of natural sciences and social sciences, including basic statistical and information technology tools that make it possible to describe, model and interpret data on phenomena and processes occurring in the aquatic environment, as well as tools for describing relationships in social-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		
	[GWOZWL3-K05] 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		

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; - Paślowski 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			
Work placement	Not applicable		