

Subject card

Subject name and code	Applied geoinformatics, PG_00131546						
Field of study	Marine Hydrography						
Date of commencement of studies	October 2025		Academic year of realisation of subject		2028/2029		
Education level	Bachelor's studies		Subject group		Optional subject group		
Mode of study	full-time studies		Mode of delivery		at the university		
Year of study	4		Language of instruction		Polish		
Semester of study	7		ECTS credits		1.0		
Learning profile	practical		Assessment form		credit		
Conducting unit							
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Piotr Bekier				
	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		10.0	26
Subject objectives	1. Familiarization with the principles of designing and programming functions (used in navigation and marine hydrography) dedicated to GIS systems. 2. Familiarization with software methods for map vectorization and asynchronous serial transmission. 3. Familiarization with input/output operations on files (binary and text), text string processing, spatial data recording formats, and converting spatial data to different formats.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[HML3-W12] basic processes taking place in the life cycle of devices, facilities and technical systems		knows: - The basic processes occurring in the life cycle of devices, objects, and technical systems.		[SW4] test/exam - oral or written		
	[HML3-W16] engineering standards and norms specific to the field of study, in particular those recommended by IHO and IMO		knows: - Engineering standards and norms appropriate for the field of study, particularly those recommended by IHO and IMO.		[SW4] test/exam - oral or written		
	[HML3-K03] apply economic and legal conditions in the aspect of professional activity related to the field of study		is ready to: - Responsibly fulfill professional roles, considering moral and ethical challenges in an international environment, including cultural constraints.		[SK2] presentation/project/paper/report		
Subject contents	Lectures: Software methods for acquiring, converting, and analyzing spatial data. Spatial data infrastructure. Cartographic visualization methods. 3D visualization technologies. Spatial data databases and modeling. WebGIS technologies.						
Prerequisites and co-requisites	1. Knowledge of the basics of geodesy and cartography. 2. Knowledge of the basics of computer science. 3. Knowledge of the basics of navigation and hydrography.						
Assessment methods and criteria	Subject passing criteria		Passing threshold		Percentage of the final grade		
	test		51.0%		100.0%		

Recommended reading	Basic literature	1. GRAVES M.: Designing XML Databases. Professional's Handbook. Helion, 2002. 2. HOLZNER S.: XML. Professional's Handbook. Helion, 2001. 3. KRAAK M-J., ORMELING F.: Cartography. Visualization of Spatial Data. PWN, Warsaw 1998. 4. RÓŻYCKI J.: Mathematical Cartography. 1970. 5. SALISZCZEW K. A.: General Cartography. PWN, Warsaw 1998. 6. URBAŃSKI J.: Mathematical Foundations of Map Projections. 1981. 7. WERESZCZYŃSKI J.: Navigational Cartography. 1970.
	Supplementary literature	1. IEC Publication 61174. 1998. 2. IHO Special Publication No. 52. 1996. 3. IHO Special Publication No. 57. 1996. 4. IMO Resolution A 817 (19). 1995. 5. ISO/TC211 Standardy serii 19100. 1998.
	eResources addresses	
Example issues/ example questions/ tasks being completed	1. What are the sources of spatial data? 2. How to convert data from Shapefile format to GeoJSON? 3. What are the elements of spatial data infrastructure? 4. Convert spatial data from one format to another. 5. Design a simple spatial data infrastructure for a city. 6. Prepare metadata documentation for a dataset.	
Work placement	Not applicable	

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