

Subject card

Subject name and code	Hydrographic data management - laboratory exercises, PG_00131521						
Field of study	Marine Hydrography						
Date of commencement of studies	October 2025		Academic year of realisation of subject		2027/2028		
Education level	Bachelor's studies		Subject group		Obligatory subject group in the field of study Subject group related to practical vocational preparation		
Mode of study	full-time studies		Mode of delivery		at the university		
Year of study	3		Language of instruction		Polish		
Semester of study	5		ECTS credits		2.0		
Learning profile	practical		Assessment form		credit		
Conducting unit							
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Dominik Iwen				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	40.0	0.0	0.0	40
	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	40		3.0		15.0	58
Subject objectives	Mastering the skills of configuring the measurement system, controlling the quality of collected data, creating various types of databases and documentation of work carried out.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[HML3-U01] plan and conduct experiments, including computer simulations, interpret the results obtained and draw conclusions		can: - Build a digital seabed model based on the collected data. - Present collected data in the GIS system		[SU2] presentation/project/paper/report		
	[HML3-U02] select and apply basic research techniques and tools in the field of aquatic environment research, as well as plan and carry out measurements, develop the obtained results and interpret them correctly		can: - Configure the hydrographic system on the survey vessel - Control the data acquisition process during measurements.		[SU2] presentation/project/paper/report		
	[HML3-U07] effectively use information and communication techniques, including utility programs to solve professional problems		can: - Safely store acquired data. - Preliminarily prepare measurement results		[SU2] presentation/project/paper/report		
	[HML3-U12] use engineering standards and norms and apply technologies specific to the field of study		can: - Prepare documentation of measurement works.		[SU2] presentation/project/paper/report		
	[HML3-K02] correctly determine the priorities in professional work for the implementation of a task specified by himself/ herself or others		is ready to: - Assessment of the purpose of carrying out measurement work and appropriate adjustment of operating methods.		[SK2] presentation/project/paper/report		

Subject contents	Laboratories: Configuration of the measurement system on the survey vessel. Taking into account the integration of data from various sensors, data recording parameters, the possibility of real-time quality control and the security of data storage on the vessel. Managing hydrographic databases. Study visit to the Hydrographic Office of the Polish Navy. Manual and automated processing of raw bathymetric data. Identification of objects, false detections and noise. Assessment of survey accuracy in the context of accuracy requirements. DTM/DSM development based on bathymetric survey data, visualization of the digital bottom model. Selection of product formats in the context of use in databases. Organization of data in various formats, reference systems and projections in a coherent GIS project database. Data visualization depending on the project objective. Preparation of a report on measurement work, including a description of the generated bottom models.		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	report	51.0%	100.0%
Recommended reading	Basic literature	1. LONGLEY P. A. et al.: GIS. Theory and practice. PWN Scientific Publishing House, 2008. 2. PDNO-06-A072 Marine hydrography. Organization and principles of conducting research. 3. PDNO-06-A073 Marine hydrography Principles of data collection and presentation of results.	
	Supplementary literature	1. IHO, 2022. IHO Standards for Hydrographic Surveys. Special Publication No. 44. S-44. International Hydrographic Organization, Monaco. 2. IHO 2005 Manual of Hydrography, C-13 International Hydrographic Organization, Monaco. 3. LINZ Land Information New Zealand, 2020. Contract specifications for Hydrographic Surveys V2.0, 28 June. 4. USDOC U.S. Department of Commerce, NOAA National Oceanic and Atmospheric Administration, NOS National Ocean Service, 2018. Hydrographic surveys specifications and deliverables. April. USACE US Army Corp of Engineering, 2013. Hydrographic Surveying. EM 1110-2-1003, USA	
	eResources addresses		
Example issues/ example questions/ tasks being completed	1. Stages of data processing from MBES. 2. Stages of data processing from SSS. 3. Principles of designing a hydrographic system on a measuring unit in the QPS Qinsy environment.		
Work placement	Not applicable		

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