University of Gdańsk

Subject card

Subject name and code	Hydrographic Data Management - laboratory classes , PG_00201139		
Field of study	Marine Hydrography		
Date of commencement of studies	October 2026	Academic year of realisation of subject	2028/2029
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	12.0	55

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-U12] is able to use engineering standards and norms and apply technologies specific to the field of study	is able to prepare documentation for measurement work	[SU2] presentation/project/paper/ report
[HML3-U07] is able to effectively use information and communication techniques, including utility programs to solve professional problems	is able to: - securely store collected data; - perform preliminary analysis of measurement results	[SU2] presentation/project/paper/ report
[HML3-U02] is able to 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	is able to: - configure the hydrographic system on the survey vessel; - monitor the data acquisition process during the survey	[SU2] presentation/project/paper/ report
[HML3-U01] is able to plan and conduct experiments, including computer simulations, interpret the results obtained and draw conclusions	is able to: - build a digital model of the seabed based on collected data; - present the collected data in a GIS system	[SU2] presentation/project/paper/ report
[HML3-K02] is ready to correctly determine the priorities in professional work for the implementation of a task specified by himself/ herself or others	is ready to assess the objectives of the measurement work and adjust the methods accordingly	[SK2] presentation/project/paper/ report

<table>
<tr><td>Subject contents</td><td>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.</td></tr>
<tr><td>Prerequisites and co-requisites</td><td></td></tr>
<tr><td>Assessment methods and criteria</td><td>
<table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td>report</td><td>51.0%</td><td>100.0%</td></tr>
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<tr><td>Recommended reading</td><td>
<table>
<tr><td>Basic literature</td><td>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.</td></tr>
<tr><td>Supplementary literature</td><td>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</td></tr>
<tr><td>eResources addresses</td><td></td></tr>
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<tr><td>Example issues/ example questions/ tasks being completed</td><td>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.</td></tr>
<tr><td>Work placement</td><td>Not applicable</td></tr>
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