University of Gdańsk

Subject card

Subject name and code	Hydrographic Survey Operations - field classes, PG_00201119						
Field of study	Marine Hydrography						
Date of commencement of studies	October 2026		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	2		Language of instruction	Polish			
Semester of study	4		ECTS credits	3.0			
Learning profile	practical		Assessment form	credit			
Conducting unit	Laboratory of Physical Oceanography -> Department of Physical Oceanography and Climate Research -> Faculty of Oceanography and Geography -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Artur Grządziel				
	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	32.0	75	
Subject objectives	Mastering the ability to plan and manage hydrographic works at sea and in ports, using various hydrographic systems, software and other survey equipment.						

Learning outcomes

Course outcome	Subject outcome	Method of verification
[HML3-U11] is able to use navigation devices, means of technical observation and communication as well as measuring instruments, as well as apply in practice various techniques of measurement and observation in the field of professional activity related to the field of study	is able to effectively use a variety of hydrographic instruments and systems employed in hydrographic work, taking into account their limitations, errors, and calibration	[SU2] presentation/project/paper/ report
[HML3-U14] is able to use the applicable terminology in presenting and discussing problems related to the field of study	is able to use appropriate terminology when presenting and discussing issues related to hydrographic surveys	[SU2] presentation/project/paper/ report
[HML3-U09] is able to critically analyse the functioning of existing technical solutions and evaluate these solutions	is able to effectively use a variety of hydrographic instruments and systems employed in hydrographic work, taking into account their limitations, errors, and calibration	[SU2] presentation/project/paper/ report
[HML3-U08] is able to independently use the professional literature available in traditional and electronic form, make an assessment, critical analysis and synthesis as well as the correct interpretation of the information obtained	is able to independently use professional literature available in both print and electronic formats, as well as the Internet; integrate, evaluate, and correctly interpret the information obtained; draw conclusions; formulate opinions; and take actions to ensure the effective and safe execution of hydrographic work	[SU2] presentation/project/paper/ report
[HML3-U06] is able to make a preliminary economic assessment of the proposed solutions and engineering activities undertaken	is able to effectively use a variety of hydrographic instruments and systems employed in hydrographic work, taking into account their limitations, errors, and calibration	[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 plan, organize, and conduct hydrographic surveys in accordance with national regulations and international standards	[SU2] presentation/project/paper/ report
[HML3-U04] is able to use analytical, simulation and experimental methods to identify, formulate and solve engineering tasks	is able to plan, organize, and conduct hydrographic surveys in accordance with national regulations and international standards	[SU2] presentation/project/paper/ report
[HML3-U12] is able to use engineering standards and norms and apply technologies specific to the field of study	is able to practically use various hydrographic devices and systems used in hydrographic works, taking into account limitations, errors and calibrations	[SU2] presentation/project/paper/ report

Subject contents

Introductory classes.

Objectives and purpose of hydrographic works.International and national standards for planning, ordering and performing various types of hydrographic works and competences of marine hydrographers.

Means and methods of obtaining, processing and transmitting hydrographic data.

Hydrographic measuring devices and systems.

Principles of planning hydrographic works.Rules and requirements for conducting hydrographic works.

Organization and principles of control of hydrographic works.Documentation of hydrographic works. Legal aspects of conducting hydrographic works.

<table>
<tr><td>Prerequisites and co-requisites</td><td colspan="2"></td></tr>
<tr><td>Assessment methods and criteria</td><td colspan="2"><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>
</table></td></tr>
<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td>1. GRZĄDZIEL A., WĄŻ M.: Creation and development of multibeam echosounder technology. Polish Hyperbaric Research, No. 1(62), 2018.
2. GRZĄDZIEL A., WĄŻ M.: Multibeam echosounder system in bathymetric measurements of planned shipping routes. Logistics, No. 6, 2014.
3. Defense Standardization Manual Maritime Hydrography. Organization and principles of conducting research (PDNO-06-A072).
4. Defense Standardization Manual Maritime Hydrography. Rules for collecting data and presenting results (PDNO-06-A073).
5. Hydrographic Review, No. 1-8, BHMW, 2005-2013.</td></tr>
<tr><td>Supplementary literature</td><td>1. IHO C-13 Manual on Hydrography.
2. IHO M-2 The Need for National Hydrographic Services.
3. IHO S-5A Standards of Competency for Category A Hydrographic Surveyors.
4. IHO S-44 IHO Standards for Hydrographic Surveys.
5. IHO S-100 IHO Universal Hydrographic Data Model.</td></tr>
<tr><td>eResources addresses</td><td></td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td colspan="2">1. Methodology for planning and performing bathymetric measurements using SBES.
2. Principles of planning a bathymetric survey using a multi-beam echosounder.
3. Operating parameters of the side scan sonar in the towed configuration.
4. The influence of the speed of sound in water on the quality of measurement data.</td></tr>
<tr><td>Work placement</td><td colspan="2">Not applicable</td></tr>
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