University of Gdańsk

Subject card

Subject name and code	Fundamentals of Hydrography - classes , PG_00201101		
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	English
Semester of study	3	ECTS credits	1.0
Learning profile	practical	Assessment form	credit
Conducting unit			
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	10.0	0.0	0.0	0.0	10

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	10	2.0	13.0	25

Subject objectives

Presentation of the role and importance of marine hydrography for human activities at sea, the organization and tasks of the national marine hydrographic service, the principles and organization of conducting hydrographic works and legal aspects of hydrographic activities.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[HML3-U06] is able to make a preliminary economic assessment of the proposed solutions and engineering activities undertaken	is able to use hydrographic terminology in Polish and English	[SU2] presentation/project/paper/ report [SU4] test/exam - oral or written
[HML3-U04] is able to use analytical, simulation and experimental methods to identify, formulate and solve engineering tasks	is able to select appropriate measurement systems for various hydrographic works.	[SU1] oral statement/conversation/ discussion [SU2] presentation/project/paper/ report [SU4] test/exam - oral or written
[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 select and apply basic survey methods in marine hydrography	[SU2] presentation/project/paper/ report [SU4] test/exam - oral or written
[HML3-U01] is able to plan and conduct experiments, including computer simulations, interpret the results obtained and draw conclusions	is able to use national and foreign literature, evaluate, critically analyze and synthesize information	[SU2] presentation/project/paper/ report [SU4] test/exam - oral or written
[HML3-K01] is ready to correctly identify and resolve professional dilemmas, especially in the aspects of security and entrusted property	is ready to correctly identify and resolve professional dilemmas, particularly those related to safety	[SK2] presentation/project/paper/ report

Subject contents	Marine hydrography - its role and importance for human activity at seaIntroduction to hydrography. The concept of marine hydrography. Basic definitions. IHO. The importance of hydrographic measurements for human activities at sea. Organization and tasks of the hydrographic service in PolandOrganization of the hydrographic service. Tasks of the hydrographic service. State Maritime Hydrographic Service. BHMW. Hydrographic Service of the Navy and Maritime Offices. National and international requirements and standardsProfessional qualifications of a hydrographer. Marine hydrographer of categories A and B. Training of hydrographers in Poland. Minimum requirements for hydrographic surveys. Standard S 44, edition 6.0.0. Standards S-5A, S-5B. Publication C-13. Hydrographic works - types and general requirements.The concept of hydrographic works. Maritime administration. Types of hydrographic works. General requirements. Bathymetric measurements. Sonar measurements. Geophysical measurements. Oceanographic measurements. Geodetic measurements. Criteria for the division of hydrographic works. Polish sea areas. Areas of survey work.Stages of performing hydrographic worksGeneral principles of conducting survey measurements. Division into stages of hydrographic work. Surveys planning. Technical design and Technical task. Work planning in the central and executive units. Survey equipment and survey units. Marine construction, hydrotechnical and hydrographic measurementsNaval construction basic definitions. Deepening of the bottom, shallowing. Bottom reinforcements. Bathymetric plans and bottom cleanliness certificate. Bottom examination report. Navigation devices and systems used in hydrography.Basic devices and measurement systems used in marine hydrography. Principles of using hydrographic measuring devices. The role and importance of navigational and hydrographic protection of human activities at sea. Basic concepts in the field of hydrographic activities.
Prerequisites and co-requisites	
Assessment methods and criteria	

Subject passing criteria	Passing threshold	Percentage of the final grade
colloquium	51.0%	100.0%

Recommended reading	Basic literature	Defense Standardization Manual. Marine Hydrography. Organization and rules of conducting research (PDNO-06-A072) Defense Standardization Manual MarineHydrography. Rules for collecting data and presenting results (PDNO-06-A073) Hydrographic Review, No. 1-8, BHMW, 2005-2013 IHO C-13 - Manual on Hydrography Regulation of the Minister of National Defense of September 17, 2018 on qualification requirements for performing hydrographic surveys (Journal of Laws of 2018, item 1947) Grządziel A., Wąż M.: Multibeam echosounder system in bathymetric surveys of planned shipping routes. Logistics, No. 6, 2014. Grządziel A., Wąż M.: Discovey and development of multibeam echosounder technology. Polish Hyperbaric Research, No. 1(62), 2018. Kosiński W.: Geodesy. SGGW Publishing House, Warsaw 2005.
	Supplementary literature	De Jong C.D. et all: Hydrography. VSSD, Delft, 2006. Lurton X.: An Introduction to Underwater Acoustics. Principles and Applications. Springer, Praxis, London 2002. Stepnowski A.: Acoustic monitoring systems of the marine environment. Gdańsk Scientific Society, Gdańsk 2001. IHO S-5A Standards of Competency for Category A Hydrographic Surveyors IHO S-44 IHO Standards for Hydrographic Surveys IHO S-100 IHO Universal Hydrographic Data Model Werner P.: Introduction to geographic information systems. Jark Publishing House, Warsaw 2004.
	eResources addresses	
Example issues/ example questions/ tasks being completed	Explain the concept of marine hydrography and give its basic meaning. Organization and tasks of the hydrographic service in Poland. Basic standards for hydrographic measurements. Division of hydrographic works. Basic devices and measurement systems used in marine hydrography.	
Work placement	Not applicable	