University of Gdańsk

Subject card

Subject name and code	Geophysics - laboratory classes , PG_00199133						
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		2.0		
Learning profile	practical		Assessment form		credit		
Conducting unit	Department of Geophysics -> Faculty of Oceanography and Geography -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		prof. dr hab. Jarosław Tęgowski				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	30.0	0.0	0.0	30
	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	30		3.0		17.0	50
Subject objectives	Acquire the ability to analyse seismograms and magnetometer records.						

Learning outcomes

Course outcome	Subject outcome	Method of verification
[HML3-U01] is able to plan and conduct experiments, including computer simulations, interpret the results obtained and draw conclusions	is able to plan and carry out physical observations and measurements in the field and laboratory and interpret their results, apply basic measurement and analytical techniques used in geophysics	[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 appropriate measurement and analytical techniques used in geophysics and interpret their results	[SU2] presentation/project/paper/ report [SU4] test/exam - oral or written
[HML3-U03] is able to recognise natural (including geological) and anthropogenic objects and link them to the processes leading to their formation	is able to identify morphological and structural features from survey records	[SU2] presentation/project/paper/ report [SU4] test/exam - oral or written
[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 use archival and electronic databases to develop and interpret geological phenomena and processes	[SU2] presentation/project/paper/ report [SU4] test/exam - oral or written
[HML3-U14] is able to use the applicable terminology in presenting and discussing problems related to the field of study	is able to use mathematical and statistical methods to analyze data and describe geological phenomena, as well as the terminology specific to the sciences and natural sciences	[SU2] presentation/project/paper/ report [SU4] test/exam - oral or written
[HML3-U19] is able to plan and implement independent learning and improvement of his/her professional competences	is able to systematically expand and update their geological knowledge	[SU2] presentation/project/paper/ report [SU4] test/exam - oral or written

Subject contents

The Exercises: Structure of the Solar System and the Earth. Application of seismic methods in geological research: reflection seismic, refraction seismic. Interpretation of seismograms and echograms - records from sparker, boomer, subbottom profiler surveys. Interpretation of magnetic field anomaly records recorded with a magnetometer. Familiarisation with the operation of surface sediment sampling equipment (box correr, vibrocorer).

Prerequisites and co-requisites

Assessment methods and criteria

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

Recommended reading

Basic literature

FAJKLEWICZ Z. (red.): Zarys geofizyki stosowanej. Wyd. geologiczne, Warszawa 1972

STENZEL P., SZYMANKO J.: Metody geofizyczne w badaniach hydrologicznych i geologiczno-inżynierskich. Wyd. geologiczne, Warszawa 1973

	Supplementary literature	Journal of Geophysical Research. The Official Magazine of the American Geophysical Union. http://www.agu.org/journals/jgr/ LOWRIE W.: Fundamentals of Geophysics. Wyd. Cambridge University Press, 2007. MORTIMER Z.: Zarys fizyki Ziemi. Uczelniane Wydawnictwa Naukowo-Dydaktyczne, Kraków 2004 (in Polish) RESNICK R., HALLIDAY D.: Fizyka dla studentów nauk przyrodniczych i technicznych. Tom I, II. Wyd. Naukowe PWN, Warszawa 1980. (in Polish) REYNOLDS J. M.: An Introduction to Applied and Environmental Geophysics, Wiley & Sons, 1997. TELFORD W. M., GELDART L. P., SHERIFF R. E.: Applied Geophysics, Cambridge Univ. Press, 1990.
	eResources addresses	
Example issues/ example questions/ tasks being completed	Preliminary analysis of surface sediment and core samples. Reflection and scattering of acoustic signals from the seabed. Practical interpretation of seabed echograms recorded with low-frequency hydroacoustic equipment; determination of seismostratigraphic units. Analysis of bathymetric maps recorded with multibeam echosounder, analysis of sonar images of the seabed, learning the principles of sediment mapping from sonar recordings. Planning and design of non-invasive bottom surveys.	
Work placement	Not applicable	

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