University of Gdańsk

Subject card

Subject name and code	Geophysics - laboratory excercise, PG_00131465		
Field of study	Marine Hydrography		
Date of commencement of studies	October 2024	Academic year of realisation of subject	2025/2026
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	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	mgr Aleksandra Malecha-Łysakowska	
	Teachers	mgr Aleksandra Malecha-Łysakowska mgr Marcelina Kasuła	

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	6.0	20.0	56

Subject objectives	Acquire the ability to analyse seismograms and magnetometer records.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[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	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-U19] plan and implement independent learning and improvement of his/her professional competences	Systematically increase and update geological knowledge.	[SU2] presentation/project/paper/ report [SU4] test/exam - oral or written
[HML3-U14] use the applicable terminology in presenting and discussing problems related to the field of study	Use mathematical and statistical methods to analyse data and describe geological phenomena and terminology appropriate to the sciences and natural sciences	[SU2] presentation/project/paper/ report [SU4] test/exam - oral or written
[HML3-U08] 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	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-U03] recognise natural (including geological) and anthropogenic objects and link them to the processes leading to their formation	Identify morphological and structural features from survey records.	[SU2] presentation/project/paper/ report [SU4] test/exam - oral or written
[HML3-U01] plan and conduct experiments, including computer simulations, interpret the results obtained and draw conclusions	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

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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