University of Gdańsk

Subject card

Subject name and code	Oceanographic Instruments and Measurements – laboratory, PG_00206208		
Field of study	Oceanography		
Date of commencement of studies	October 2026	Academic year of realisation of subject	2026/2027
Education level	Master's studies	Subject group	Obligatory subject group in the field of study Optional subject group Subject group related to scientific research in the field of study
Mode of study	full-time studies	Mode of delivery	at the university
Year of study	1	Language of instruction	Polish
Semester of study	1	ECTS credits	3.0
Learning profile	academic	Assessment form	credit
Conducting unit	Faculty of Oceanography and Geography -> Rector		
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. Dorota Burska, prof. UG	
	Teachers		

Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	45.0	0.0	0.0	45
	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	45	3.0	27.0	75

Subject objectives	
	Practical knowledge of the principles of instruments/devices and measurement platforms/systems used today in oceanographic research (physical, chemical and geological) and the use of existing databases to solve research, environmental,management problems.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[OCEANMU2-U06] is able to use specialized computer software as well as advanced mathematical and statistical methods to analyze data and describe processes and phenomena occurring in the marine and coastal environment; evaluates their reliability and usefulness and performs critical analysis	is able to use specialized computer software and mathematical and statistical methods in data analysis and description of phenomena and processes especially in the fields of chemistry, physics and marine geology.	[SU2] presentation/project/paper/ report [SU3] text preparation/written work
[OCEANMU2-W03] has an in-depth understanding of research methods used in oceanography and related sciences, and interprets their mechanisms and interrelationships across different spatial and temporal scales	knows and understands, in-depth, advanced research methods used in oceanographic metrology, as pertains to (a) modern sensors and devices used for in situ measurements and (b) specialized software used to conduct measurements, describe and interpret the phenomena and processes occurring in marine and aquatic environments.	[SW2] presentation/project/paper/ report [SW5] implementation of a problem task
[OCEANMU2-U03] can plan and carry out independently advanced research and measurements, both in field and laboratory, using appropriately selected measurement and analytical techniques in the field of oceanography, adequately to the studied specialty and research problem	is able to independently plan and carry out research and measurements using appropriately selected measuring and analytical techniques in the field of oceanography, adapting the methods used to the research problem.	[SU6] demonstration of practical skills [SU8] observation of student's independent or team work
[OCEANMU2-K04] is ready to critically evaluate his/her knowledge and received content in the field of natural sciences in in particular in the field of the studied specialty, a in problematic situations, supports oneself with knowledge experts	is ready to critically evaluate his knowledge of modern devices and sensors used in oceanographic surveying and to support himself with expert knowledge in solving problems.	[SK2] presentation/project/paper/ report [SK3] text preparation/written work

Subject contents

1. Verification of the sources of information on marine environmental measurements, taking into account the type of platform, accuracy and precision of the device, availability of data,

2. Measurement parameters (measurement range, precision, accuracy, sensor response time, sampling interval, recording duration)

3. Preparation of instruments/devices for in situ measurement work/experimental setups (e.g.:configuration and calibration of equipment, checking the correctness of its operation, use of specialized software)

4. Data systems (type of data, data compression, data storage, etc...,) using examples of specialized software used in marine physics, chemistry and geology, contemporary oceanographic data bases,

5. Analysis and presentation of results problem presentation based on measurement/archival data (scientific, management, monitoring)

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
written answer	51.0%	30.0%
data compilation	51.0%	70.0%

Recommended reading	Basic literature	1. Instructions and manuals for use of equipment/instrumentation. 2. Reports from IMGW, WIOŚ, HELCOM, hydrodynamic model of the southern BalticSea, weather forecasts, SatBaltic platform, GOOS,NOA, selected scientific papers
	Supplementary literature	1 Różdżyński K., (1996) Oceanographic surveying, vol. 1-12,IMGW,Warsaw (in Polish). 2.Lekkerkerk, H. J., Van der Velden, R., Roders, J.,Haycock, T., DeVries,R., Jansen, P., Beemster ,C. (2006) Handbook of Offshore Surveying- Acquisition and Processing. Clarkson Research Services, London
	eResources addresses	
Example issues/ example questions/ tasks being completed	1.Conversions, tasks in terms of units used in oceanographic surveying. 2.Processing/development of selected hydroacoustic data (e.g.: bathymetry, bottom structure, depth profiles). 3.Processing/development of the results of an environmental experiment - evaluation of temporal changes.	
Work placement	Not applicable	

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