

**Subject card**

<b>Subject name and code</b>	Oceanographic Instruments and Measurements – laboratory, PG_00206208						
<b>Field of study</b>	Oceanography						
<b>Date of commencement of studies</b>	October 2026	<b>Academic year of realisation of subject</b>			2026/2027		
<b>Education level</b>	Master's studies	<b>Subject group</b>			Obligatory subject group in the field of study Optional subject group Subject group related to scientific research in the field of study		
<b>Mode of study</b>	full-time studies	<b>Mode of delivery</b>			at the university		
<b>Year of study</b>	1	<b>Language of instruction</b>			Polish		
<b>Semester of study</b>	1	<b>ECTS credits</b>			3.0		
<b>Learning profile</b>	academic	<b>Assessment form</b>			credit		
<b>Conducting unit</b>	Faculty of Oceanography and Geography -> Rector						
<b>Name and surname of lecturer (lecturers)</b>	<b>Subject supervisor</b>		dr hab. Dorota Burska				
	<b>Teachers</b>						
<b>Lesson types</b>	<b>Lesson type</b>	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	<b>Number of study hours</b>	0.0	0.0	45.0	0.0	0.0	45
	E-learning hours included: 0.0						
<b>Learning activity and number of study hours</b>	<b>Learning activity</b>	Participation in didactic classes included in study plan		Participation in consultation hours		Self-study	SUM
	<b>Number of study hours</b>	45		3.0		27.0	75
<b>Subject objectives</b>	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-K04] is ready to critically evaluate his/her knowledge and received content in the field of natural sciences in particular in the field of the studied specialty, a in problematic situations, supports oneself with knowledge experts	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.	[SK2] presentation/project/paper/report [SK3] text preparation/written work
	[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	knows and understands in an advanced way advanced research methods used in evaluographic metrology, in the field of modern sensors and devices used for in situ measurements and software specialized used for conduct measurements, describe and interpretation of phenomena and processes occurring in aquatic environment, in particular particularly marine.	[SU6] demonstration of practical skills [SU8] observation of student's independent or team 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	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.	[SW2] presentation/project/paper/report [SW5] implementation of a problem task
	[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 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.	[SU2] presentation/project/paper/report [SU3] text preparation/written work
Subject contents	<ol style="list-style-type: none"> <li>1. Verification of the sources of information on marine environmental measurements, taking into account the type/platform, accuracy and precision of the device, availability of data,</li> <li>2. Measurement parameters (measurement range, precision, accuracy, sensor response time, sampling interval, recording duration)</li> <li>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)</li> <li>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,</li> <li>5. Analysis and presentation of results problem presentation based on measurement/archival data (scientific, management, monitoring)</li> </ol>		
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	<p>1. Instructions for use of equipment/instrumentation.</p> <p>2. Reports from IMGW, WIOŚ, HELCOM, hydrodynamic model of the southern Baltic Sea, weather forecasts, SatBaltic platform, GOOS, NOAA, scientific articles.</p>
	Supplementary literature	<p>1. Rózdzyński K., (1996) Oceanographic surveying, vol. 1-12, IMGW, Warsaw (in Polish).</p> <p>2. Lekkerkerk, H. J., Van der Velden, R., Roders, J., Haycock, T., DeVries,</p>
	eResources addresses	
Example issues/ example questions/ tasks being completed	<p>1. Conversions, tasks in terms of units used in oceanographic surveying.</p> <p>2. Development of selected hydroacoustic data (e.g.: bathymetry, bottom structure, depth profiles).</p> <p>3. Development of the results of an environmental experiment - evaluation of changes over time.</p>	
Work placement	Not applicable	

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