

Subject card

Subject name and code	Physics for oceanographers - auditory exercises, PG_00103326						
Field of study	Oceanography						
Date of commencement of studies	October 2025		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 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	2		ECTS credits		1.0		
Learning profile	academic		Assessment form		credit		
Conducting unit	Department of Physical Oceanography and Climate Research -> Faculty of Oceanography and Geography -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		dr Wojciech Brodziński				
	Teachers		dr Wojciech Brodziński				
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	20.0	0.0	0.0	0.0	20
	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	20		2.0		8.0	30
Subject objectives	1. Providing knowledge and developing skills in the use of higher mathematics to describe physical phenomena and the physical interpretation of the obtained mathematical solutions. 2. Acquiring calculating proficiency in solving basic physical problems. 3. Creating the basis for the effective use of subsequent courses on marine physics and other areas of oceanography.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	OCEANL3-W02	K_W02 - Understands and correctly describes the basic physical phenomena occurring in nature, including the marine environment, and the laws governing them	[SW4] test/exam - oral or written [SW1] oral statement/ conversation/discussion [SW5] implementation of a problem task
	OCEANL3-U05	K_U05 - Is able to use mathematical methods in solving physical problems (including those related to phenomena occurring in the sea) and analysis of the obtained results	[SU1] oral statement/conversation/ discussion [SU4] test/exam - oral or written [SU5] implementation of a problem task [SU8] observation of student's independent or team work
	OCEANL3-W01	K_W01 - Knows and understands the terminology used in physics at an advanced level	[SW4] test/exam - oral or written [SW1] oral statement/ conversation/discussion [SW5] implementation of a problem task
Subject contents	Auditory exercises will include solving exercises illustrating selected topics from the lecture: C.1. Motion of a material point: Characteristics of motion. Uniform linear motion. Non-uniform linear motion. Motion on a plane. Relativity of motion. C.2. Dynamics: Force. I - III Newton's laws of motion. Types of forces in nature. Momentum. The principle of conservation of momentum. Work. Conservative and non-conservative forces. Mechanical energy. Principle of conservation of mechanical energy. Collisions. C.3. Mechanical oscillations: Parameters describing harmonic oscillations. Equation of vibrations of a harmonic oscillator. Energy in oscillating motion. C.4. Basics of wave motion.		
Prerequisites and co-requisites	Knowledge of the basics of higher mathematics.		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Activity (extra points, max. +10% to final grade)	0.0%	0.0%
	Short entry tests	0.0%	30.0%
	Final test	0.0%	70.0%
Recommended reading	Basic literature	1. Samuel J. Ling, William Moebs , Jeff Sanny, 2018, Fizyka dla szkół wyższych, OpenStax Polska (in Polish)	
	Supplementary literature	1. Jearl Walker, 2011. Podstawy fizyki. Zbiór zadań. Wydawnictwo: Naukowe PWN. (in Polish) 2. Paul G. Hewitt, 2010. Fizyka wokół nas Wydawnictwo Naukowe PWN. (in Polish) 3. David Halliday, Robert Resnick, Jearl Walker, 2007. Podstawy fizyki - tom 1. Mechanika. Wydawnictwo Naukowe PWN. (in Polish) 4. David Halliday, Robert Resnick, Jearl Walker, 2007. Podstawy fizyki - tom 2. Mechanika, drgania i fale, termodynamika. Wydawnictwo Naukowe PWN. (in Polish)	
	eResources addresses		
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		

Document generated electronically. Does not require a seal or signature.