

Subject card

Subject name and code	Physics - lecture, PG_00091096						
Field of study	Geology						
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	
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			2.0	
Learning profile	academic		Assessment form			exam	
Conducting unit	Department of Geophysics -> Faculty of Oceanography and Geography -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. Marcin Paszkuta				
	Teachers		dr hab. Marcin Paszkuta				
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	0.0	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		10.0		10.0	50
Subject objectives	To introduce the basic physical phenomena and processes, the laws governing them and the methods of studying them. To apply the laws of physics to geology. Develop creative thinking skills to link physics and geology.						
Learning outcomes	Course outcome		Subject outcome			Method of verification	
	[GEOLL3_W02] knows and understands the terminology appropriate in science and natural sciences		knows and understands physics terminology			[SW4] test/exam - oral or written	
	[GEOLL3_W01] knows and understands the basic natural phenomena and explains their course in relation to geological processes		knows and understands basic physical phenomena and laws, and explains them in relation to geological processes			[SW4] test/exam - oral or written	
Subject contents	1. Motion of a point of material: Characteristics of motion. Uniform rectilinear motion. Uniform rectilinear motion. Motion in a plane. Relativity of motion. 2. Dynamics: Force. Newton's 1st - 3rd laws of motion. Types of forces in nature. Momentum. Principle of conservation of momentum. Work. Conservative and non-conservative forces. Mechanical energy. Principle of conservation of energy. Collisions. Rotational motion. 3. Mechanical oscillation: Dynamics of oscillation (equilibrium, energy changes). Parameters describing the oscillations of an oscillator. Natural and forced oscillations. Resonance phenomena. 4. Waves: Definition of a wave. Classification of waves. Parameters characterising a wave. Wave phenomena. 5. Electromagnetism: Electrostatic force. Electrostatics. Electric current and magnetic force. Electromagnetic oscillations. Electromagnetic waves. 6. Thermodynamics: Basic Concepts. Main principles of thermodynamics.						
Prerequisites and co-requisites							
Assessment methods and criteria	Subject passing criteria		Passing threshold			Percentage of the final grade	
	Written exam		51.0%			100.0%	

Recommended reading	Basic literature	Halliday D., Resnick R., Walker J., 2007. Podstawy fizyki - tom 1. Mechanika. Wyd. Naukowe PWN, Warszawa Halliday D., Resnick R., Walker J., 2007. Podstawy fizyki - tom 2. Mechanika, drgania i fale, termodynamika, Wyd. Naukowe PWN, Warszawa Halliday D., Resnick R., Walker J., 2007. Podstawy fizyki - tom 3. Elektryczność i magnetyzm, Wyd. Naukowe PWN, Warszawa Halliday D., Resnick R., Walker J., 2007. Podstawy fizyki - tom 4. Fale elektromagnetyczne, optyka i teoria względności, Wyd. Naukowe PWN, Warszawa Halliday D., Resnick R., Walker J., 2007. Podstawy fizyki - tom 5. Fizyka współczesna, Wyd. Naukowe PWN, Warszawa Orear J., 2008. Fizyka, t. 1 i 2, Wyd. WNT, Warszawa
	Supplementary literature	Walker J., 2011. Podstawy fizyki. Zbiór zadań, Wyd. Naukowe PWN, Warszawa Hewitt P. G., 2010. Fizyka wokół nas, Wyd. Naukowe PWN, Warszawa Resnick R., Halliday D., 1999. Fizyka (cz. 1 i 2), Wyd. Naukowe PWN, Warszawa
	eResources addresses	
Example issues/ example questions/ tasks being completed	Mechanics, Dynamics. Kinematics. Thermodynamics, waves	
Work placement	Not applicable	

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