University of Gdańsk

Subject card

Subject name and code	Physics - lecture, PG_00091096		
Field of study	Geology		
Date of commencement of studies	October 2024	Academic year of realisation of subject	2024/2025
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_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
[GEOLL3_W02] knows and understands the terminology appropriate in science and natural sciences	knows and understands physics terminology	[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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