



## Subject card

Subject name and code	Physics I, PG_00059243						
Field of study	Civil Engineering						
Date of commencement of studies	October 2024	Academic year of realisation of subject			2024/2025		
Education level	first-cycle 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	1	ECTS credits			4.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Instytut Nanotechnologii i Inżynierii Materiałowej -> Faculty of Applied Physics and Mathematics						
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Tadeusz Miruszewski					
	Teachers						
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	30.0	0.0	0.0	0.0	60
	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	60		5.0		35.0	100
Subject objectives	Familiarizing the student with the basic phenomena and laws of physics. Acquisition by the student of the ability to explain phenomena, draw conclusions and solve problems						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	[K6_U01] Apply knowledge and understanding of mathematics as well as sciences and engineering disciplines underlying civil engineering to solve engineering problems and issues.	The student solves problems in physics and interprets the obtained results.			[SU4] Assessment of ability to use methods and tools [SU2] Assessment of ability to analyse information [SU1] Assessment of task fulfilment		
	[K6_W01] Demonstrate knowledge and understanding of mathematics as well as sciences and engineering disciplines underlying civil engineering at a level necessary to achieve the other programme outcomes.	The student defines the basic laws of physics. The student applies the acquired knowledge to describe the physical and environmental reality. The student applies the physical laws to identify, formulate and solve problems.			[SW1] Assessment of factual knowledge		
Subject contents	Kinematics of a material point (rectilinear motion, motion on a plane); dynamics of a material point (Newton's laws, work and other forms of energy, conservative forces, conservation principles); rigid body mechanics; harmonic motion (simple, damped and forced); mechanical waves; static elements; kinetic-molecular theory of gases; elements of thermodynamics; kinetic-molecular theory of transport processes.						
Prerequisites and co-requisites	The course is dedicated to students who have completed an extended physics and mathematics course in a secondary school. Students who have not completed such a course should either participate in tutorials or increase the number of hours of self-work and participation in consultations.						
Assessment methods and criteria	Subject passing criteria	Passing threshold			Percentage of the final grade		
	assessment	60.0%			100.0%		

Recommended reading	Basic literature	Physics for Colleges Volume 1 & 2; OpenStax Poland Fundamentals of physics volume 1,2,3; Halliday D.; Resnick R.; Walker J Halliday D.'s workbook; Resnick R.; Walker J
	Supplementary literature	Podstawy fizyki Herman M.A. ; Kalestyński, Widomski L  Zbiór zadań z fizyki Jędrzejewski J., Kruczek W., Kujawski A.  Zbiór zadań z fizyki Cedrik M.S.
	eResources addresses	Adresy na platformie eNauczanie:
Example issues/ example questions/ tasks being completed	Derive the formula for centripetal acceleration in circular motion Prove Steiner's theorem Derive the relationship between the energy and the temperature of the gas	
Work placement	Not applicable	