



## Subject card

Subject name and code	Physics II, PG_00039779						
Field of study	Materials Engineering, Materials Engineering, Materials Engineering						
Date of commencement of studies	October 2021	Academic year of realisation of subject	2021/2022				
Education level	first-cycle 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	7.0				
Learning profile	general academic profile	Assessment form	exam				
Conducting unit	Institute of Nanotechnology and Materials Engineering -> Faculty of Applied Physics and Mathematics						
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Jakub Karczewski					
	Teachers	dr inż. Karolina Górnicka Karolina Milewska dr hab. inż. Jakub Karczewski Daniel Jaworski dr inż. Marta Prześniak-Welenc					
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	30.0	30.0	0.0	0.0	90
	E-learning hours included: 0.0						
	Adresy na platformie eNauczanie: Fizyka II (WFTiMS+WIMiO) - Moodle ID: 23422 <a href="https://enauczanie.pg.edu.pl/moodle/course/view.php?id=23422">https://enauczanie.pg.edu.pl/moodle/course/view.php?id=23422</a> Fizyka II (WFTiMS+WIMiO) - Moodle ID: 23422 <a href="https://enauczanie.pg.edu.pl/moodle/course/view.php?id=23422">https://enauczanie.pg.edu.pl/moodle/course/view.php?id=23422</a>						
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	90	10.0	75.0	175		
Subject objectives	Getting to know the basic laws of classical physics. Acquiring the ability to analyze physical phenomena and technical issues based on the laws of physics.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	K6_U05	The student has acquired the ability to independently deepen his knowledge of physics	[SU3] Assessment of ability to use knowledge gained from the subject [SU2] Assessment of ability to analyse information
	K6_U01	The student knows how to plan, perform and interpret simple physical experiments showing the validity of the basic laws of physics.	[SU4] Assessment of ability to use methods and tools [SU2] Assessment of ability to analyse information
	K6_K01	The student understands the need to deepen his knowledge of physics, learned the methods of science and ways of acquiring knowledge	[SK5] Assessment of ability to solve problems that arise in practice [SK4] Assessment of communication skills, including language correctness
K6_W02	The student is able to explain and interpret basic physical phenomena based on the laws of physics.	[SW1] Assessment of factual knowledge	
Subject contents	1. Kinematics 2. dynamics, rules of behavior 3. relativistic mechanics 4. a rigid body 5. harmonic vibrations 6. waves and optics 7. thermodynamics		
Prerequisites and co-requisites	basic knowledge of mathematics at high school level		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	classes with problem solving	50.0%	40.0%
	lecture exam	50.0%	40.0%
	laboratory	50.0%	20.0%
Recommended reading	Basic literature	J. Massalski, M. Massalska "Fizyka dla inżynierów" Wydawnictwa Naukowo-Techniczne, Warszawa 2005  M.A. Herman, A. Kalestyński, L. Widomski, "Podstawy fizyki dla kandydatów na wyższe uczelnie i studentów: Wydawnictwo Naukowe PWN Warszawa 2009	
	Supplementary literature	Cz. Bobrowski Fizyka krótki kurs, Wydawnictwa Naukowo-Techniczne, Warszawa 2005  J. Walker Podstawy fizyki, Zbiór zadań, Wydawnictwo Naukowe PWN, Warszawa 2005	
	eResources addresses	Fizyka II (WFTiMS+WIMiO) - Moodle ID: 23422 <a href="https://enauczanie.pg.edu.pl/moodle/course/view.php?id=23422">https://enauczanie.pg.edu.pl/moodle/course/view.php?id=23422</a> Fizyka II - wykład - Moodle ID: 23438 <a href="https://enauczanie.pg.edu.pl/moodle/course/view.php?id=23438">https://enauczanie.pg.edu.pl/moodle/course/view.php?id=23438</a>	
Example issues/ example questions/ tasks being completed	1. Kinematics: basic concepts and kinematic quantities, uniform rectilinear motion; uniformly variable motion; relativity of motion. 2. Dynamics: the principles of dynamics; inertial and non-inertial frames of reference; dynamics of translational movement; dynamics of rotational motion. 3. Principles of conservation in mechanics: work, energy and power; the principle of conservation of energy; momentum; the principle of conservation of momentum; angular momentum; the principle of conservation of angular momentum.		
Work placement	Not applicable		

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