



## Subject card

Subject name and code	Physics in experiment I, PG_00063333						
Field of study	Nanotechnology						
Date of commencement of studies	October 2025		Academic year of realisation of subject		2025/2026		
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	1		ECTS credits		5.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Institute Of Nanotechnology And Materials Engineering -> Faculty Of Applied Physics And Mathematics -> Wydziały Politechniki Gdańskiej						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. inż. Beata Bochentyn				
	Teachers		dr inż. Leszek Wicikowski  dr hab. inż. Beata Bochentyn				
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		60.0	125
Subject objectives	Familiarization with the basic laws of classical physics, with particular emphasis on broadly understood mechanics and analysis of thermal phenomena. Acquisition of skills in analyzing physical phenomena and solving technical problems based on the laws of physics.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K6_W03] has systematic knowledge within the scope of all branches of general physics (mechanics and study of heat, electricity and magnetism, waves, optics, elements of modern physics).		The student knows the basic issues of classical mechanics, kinematics and dynamics of translational and rotational motion. He can describe vibrational and wave motion, knows the basic problems of thermodynamics and heat phenomena.		[SW1] Assessment of factual knowledge		
	[K6_U01] can learn independently, obtain information from literature, databases and other properly selected sources		The student is able to independently acquire and systematize knowledge in the field of physics from Polish or English academic textbooks and other sources of scientific knowledge. The student is able to assess the reliability of the analyzed sources.		[SU3] Assessment of ability to use knowledge gained from the subject [SU2] Assessment of ability to analyse information		
	[K6_U02] can analyze and solve simple scientific and technical problems based on possessed knowledge, applying analytical, numerical, simulation and experimental methods.		The student prepares to solve physical problems using the recommended textbooks. Recognizes and understands basic physical laws. Acquires the ability to analyze experimental data. Can analyze physical phenomena by making the necessary drawings. He obtains the final results by deriving them from the laws of physics. Applies unit conversion and performs numerical calculations.		[SU5] Assessment of ability to present the results of task [SU4] Assessment of ability to use methods and tools [SU3] Assessment of ability to use knowledge gained from the subject [SU2] Assessment of ability to analyse information		

Subject contents	Physics in Experiment I introduces students to issues related to various branches of physics, which will be explained based on experimental demonstrations. Topics of the classes are: rectilinear uniform and uniformly changing motion, projections: vertical, horizontal and oblique, Newton's dynamics of the translational motion of a material point, the principles of conservation of energy and momentum in translational motion, rotational motion of a material point and a rigid body, simple, damped and forced oscillatory motion, mechanical waves, thermodynamics and thermal phenomena.		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Final mark from tutorial	50.0%	50.0%
	Final exam from the lecture part	50.0%	50.0%
Recommended reading	Basic literature	[1] K. Jezierski, K. Sierański, I.Szlufarska, <i>Fizyka -- Repetytorium, zadania z rozwiązaniami, kurs powtórkowy dla studentów I roku i uczniów szkół średnich</i> , Oficyna Wydawnicza Scripta, Wrocław 2005  [2] M.Herman, A.Kalestyński, L.Widomski, <i>Podstawy Fizyki dla kandydatów na wyższe uczelnie i studentów</i> , WN PWN, Warszawa 2004  [3] J.Jędrzejewski, W.Kruczek, A.Kujawski, <i>Zbór zadań z fizyki dla uczniów szkół średnich i kandydatów na studia</i> , WNT, Warszawa, 2000  [4] D.Halliday, R.Resnick, J.Walker, <i>Podstawy Fizyki</i> , PWN, Warszawa	
	Supplementary literature	[1] D.Halliday, R.Resnick, J.Walker, <i>Podstawy Fizyki, Zbiór zadań</i> , PWN, Warszawa  [2] Zbiór zadań z fizyki, skrypt Politechniki Gdańskiej, <a href="http://www.mif.pg.gda.pl/zz/">http://www.mif.pg.gda.pl/zz/</a>  [3] W.Moebs, S.J.Ling, J.Sanny, <i>Fizyka dla szkół wyższych</i> , Tom 1, OpenStax Polska  <a href="https://openstax.org/details/books/fizyka-dla-szk%C3%B3%C5%82-wy%C5%BCszych-tom-1">https://openstax.org/details/books/fizyka-dla-szk%C3%B3%C5%82-wy%C5%BCszych-tom-1</a>	
	eResources addresses	Adresy na platformie eNauczanie:	
	Example issues/ example questions/ tasks being completed		
Work placement	Not applicable		

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