GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Physics in experiment I, PG_00063333		
Field of study	Nanotechnology		
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 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	Instytut Nanotechnologii i Inżynierii Materiałowej -> Faculty of Applied Physics and Mathematics		
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_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.	[SU2] Assessment of ability to analyse information [SU3] Assessment of ability to use knowledge gained from the subject [SU4] Assessment of ability to use methods and tools [SU5] Assessment of ability to present the results of task
[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.	[SU2] Assessment of ability to analyse information [SU3] Assessment of ability to use knowledge gained from the subject
[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

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 exam from the lecture part	50.0%	50.0%
Final mark from tutorial	50.0%	50.0%

Recommended reading	Basic literature	[1] K. Jezierski, K. Sierański, I.Szlufarska, *Fizyka -- Repetytorium, zadania z rozwiązaniami, kurs powtórkowy dla studentów I roku i uczniów szkół średnich*, Oficyna Wydawnicza Scripta, Wrocław 2005 [2] M.Herman, A.Kalestyński, L.Widomski, *Podstawy Fizyki dla kandydatów na wyższe uczelnie i studentów*, WN PWN, Warszawa 2004 [3] J.Jędrzejewski, W.Kruczek, A.Kujawski, *Zbór zadań z fizyki dla uczniów szkół średnich i kandydatów na studia*, WNT, Warszawa, 2000 [4] D.Halliday, R.Resnick, J.Walker, *Podstawy Fizyki*, PWN, Warszawa
	Supplementary literature	[1] D.Halliday, R.Resnick, J.Walker, *Podstawy Fizyki*, *Zbiór zadań*, PWN, Warszawa [2] Zbiór zadań z fizyki, skrypt Politechniki Gdańskiej, *http://www.mif.pg.gda.pl/zz/* [3] W.Moebs, S.J.Ling, J.Sanny, *Fizyka dla szkół wyższych*, Tom 1, OpenStax Polska *https://openstax.org/details/books/fizyka-dla-szk%C3%B3%C5%82-wy%C5%BCszych-tom-1*
	eResources addresses	Adresy na platformie eNauczanie:
Example issues/ example questions/ tasks being completed		
Work placement	Not applicable	

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