GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Physics I, PG_00068902		
Field of study	Cosmetic technologies		
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
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	3.0
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 inż. Sebastian Wachowski	
	Teachers	dr inż. Sebastian Wachowski dr inż. Michał Winiarski	

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	20.0	20.0	0.0	0.0	0.0	40

E-learning hours included: 0.0

eNauczanie source addresses:

Moodle ID: 1230 Fizyka I dla Technologii Kosmetycznych ed 25
https://enauczanie.pg.edu.pl/2025/course/view.php?id=1230

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	40	5.0	30.0	75

Subject objectives

The aim of this course is to familiarize students with basic concepts in physics that are necessary to understand scientific methodology in cosmetics technology.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_W01] defines the phenomena, processes and physicochemical laws used to produce utility goods and provide services	Student knows the basic laws of thermodynamics.	[SW1] Assessment of factual knowledge
[K6_W02] explains the structure and functions of cosmetic raw materials and methods and instruments for determining their quantity, quality and activity	Student understands physical principles of operation of instruments used to determine quantity, quality and activity of chemical components of cosmetics.	[SW1] Assessment of factual knowledge

Subject contents

1. Classical mechanics
2. Work, power, energy
3. Oscilations
4. Wave phenomena
5. Thermodynamics
6. Heat transfer
7. Fundamentals of liquid and gas physics

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Colloquim	50.0%	45.0%
Exam	50.0%	55.0%

Recommended reading	Basic literature	1. Herman, Kalestyński, Widomski, Podstawy fizyki dla kandydatów na uczelnie wyższe, Wydawnictwo naukowe PWN 2. Online book: University Physics, OpenStax
	Supplementary literature	1. Massalski, Massalska, Fizyka dla Inżynierów, Wydawdnictwa Naukowo Techniczne 2. Resnick, Halliday, Walker, Podstawy Fizyki, PWN
	eResources addresses	Basic https://openstax.pl/podreczniki - link to position 2.
Example issues/ example questions/ tasks being completed	1. Derive the equation for acceleration in simple harmonic motion. Describe the quantities involved. Use the example of a mathematical pendulum or a mass-spring system as a model system. 2. What is an adiabatic process? 3. What are conservative forces? What are their properties?	
Work placement	Not applicable	

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