



Subject card

Subject name and code	Physics, PG_00055759						
Field of study	Mechanical and Medical Engineering						
Date of commencement of studies	October 2023		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	3		Language of instruction		Polish		
Semester of study	5		ECTS credits		6.0		
Learning profile	general academic profile		Assessment form		exam		
Conducting unit	Faculty of Ocean Engineering and Ship Technology						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. inż. Małgorzata Śmiałek-Telega				
	Teachers						
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	15.0	15.0	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		15.0		75.0	150
Subject objectives	N/A						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K6_W02] he/she has physics skills in the field of classical mechanics, acoustics, optics, electricity, magnetism, quantum physics and medical physics				[SW1] Assessment of factual knowledge [SW2] Assessment of knowledge contained in presentation		
	[K6_U05] he/she is able to use analytic and modelling methods to formulate and solve engineering tasks related to the mechanical-medical area				[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		
	[K6_U01] he/she is able to acquire knowledge and self-studying, he/she is able to find needed information in specialist books, databases and other sources, he/she is able to integrate information and draw conclusions, he/she is able to communicate by using different technics in work and outside				[SU1] Assessment of task fulfilment [SU5] Assessment of ability to present the results of task		

Subject contents	1. Mechanical waves 2. Thermodynamics and heat, 3. Kinetic theory of gases 4. Electric charge and electric field 5. Electric capacity, current and resistance 6. Magnetic field, induction and inductance 7. Electromagnetic waves 8. Optics; Interference and diffraction 9. Elements of condensed phase physics 10. Elements of physics and nuclear energy 11. project management 12. construction and testing of the test system 13. system programming elements 14. simple programmable systems		
Prerequisites and co-requisites	Fundamentals of differential calculus and geometry. Fundamentals of classical mechanics. Basic skills in programming		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Lecture	50.0%	50.0%
	Laboratory	50.0%	50.0%
Recommended reading	Basic literature	David Halliday, Robert Resnick, Jearl Walker, Podstawy fizyki. T. 1-5, Wydawnictwo Naukowe PWN, 2012 J. Orear, Fizyka, tom 1 i 2, Warszawa 1998 A. Januszajtis, Fizyka dla Politechnik, tom 1-3, Warszawa 1991 J. Massalski, M. Massalska, Fizyka dla Inżynierów, tom 1 i 2, Warszawa 2013	
	Supplementary literature	Paul A. Tipler, Ralph A. Llewellyn, Fizyka współczesna, Wydawnictwo Naukowe PWN, Warszawa 2012; I.W. Sawieliew, Wykłady z fizyki, tom 1. i 2., Wydawnictwa Naukowe PWN, Warszawa, 2003	
	eResources addresses	Adresy na platformie eNauczanie:	
Example issues/ example questions/ tasks being completed	1. EM wave polarity (linear and unpolarized polarized wave, Malus' law) 2. Law of refraction (pattern with description and drawing) 3. Concave spherical concave mirrors (drawing, diagram of radii, which we get images depending on the placement of the object relative to the mirror) 4 Diffusing lens (drawing, diagram of rays, which we get images depending on the placement of the object in relation to the lens) 5. Constructive event (in which situation it takes place, drawing with description) 6. Young's experiment on two slits (drawing with description, when there are bright colors) when dark stripes, pattern)		
Work placement	Not applicable		