



Subject card

Subject name and code	Physics, PG_00055394						
Field of study	Mechanical Engineering						
Date of commencement of studies	October 2021		Academic year of realisation of subject		2023/2024		
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		5.0		
Learning profile	general academic profile		Assessment form		exam		
Conducting unit	Institute of Ocean Engineering and Ship Technology -> Faculty of Mechanical Engineering and Ship Technology						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. inż. Małgorzata Śmiałek-Telega				
	Teachers		dr inż. Klaudia Wrzask dr hab. inż. Małgorzata Śmiałek-Telega dr inż. Joanna Grochowalska				
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						
	Additional information: N/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	60		5.0		60.0	125
Subject objectives	N/A						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K6_W02] possesses an organized knowledge on physics, including classic mechanics, acoustics, optics, electricity and magnetism, shows knowledge of the elements of quantum physics		NA		[SW1] Assessment of factual knowledge [SW3] Assessment of knowledge contained in written work and projects		
	[K6_U01] is able to acquire information from specialized literary sources, databases and other resources, essential for solving engineering tasks; is able to compile the obtained information pieces and to interpret them, additionally is able to form conclusions and present justified opinion		NA		[SU1] Assessment of task fulfilment [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		

Subject contents	1. Electromagnetic waves 2. Optics; Interference and diffraction 3. Elements of condensed phase physics 4. Elements of physics and nuclear energy 5. project management 6. construction and testing of the test system 7. system programming elements		
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
	Problems	50.0%	30.0%
	Laboratory	50.0%	40.0%
	Lecture	50.0%	30.0%
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: PG_00055394 MiBM Fizyka 23/24 - Moodle ID: 33434 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=33434 PG_00055394 MiBM Fizyka 23/24 - Moodle ID: 33434 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=33434	
Example issues/ example questions/ tasks being completed	1. List the properties of metals, insulators and semiconductors; what are the main differences between them? 2. Describe p-n junction 3. Characterise e-m waves, what differs them from mechanical ones? 4. What are the main features of laser light? 5. How does the nuclear reactor work?		
Work placement	Not applicable		