



## Subject card

Subject name and code	Physics III, PG_00039785						
Field of study	Materials Engineering, Materials Engineering, Materials Engineering						
Date of commencement of studies	October 2021		Academic year of realisation of subject		2022/2023		
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	2		Language of instruction		Polish		
Semester of study	3		ECTS credits		6.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Zakład ceramiki -> Instytut Nanotechnologii i Inżynierii Materiałowej -> Faculty of Applied Physics and Mathematics						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Tadeusz Miruszewski				
	Teachers		dr inż. Marek Augustyniak  dr inż. Tadeusz Miruszewski  dr inż. Kamil Kolincio				
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		10.0		80.0	150
Subject objectives	Acquiring knowledge in the field of electricity and magnetism, atomic and nuclear physics						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	K6_U01		Student is able to perform basic measurements in the field of electricity and magnetism, and atomic physics.		[SU2] Assessment of ability to analyse information [SU3] Assessment of ability to use knowledge gained from the subject		
	K6_K01		The student is able to determine the basic problems of electricity and magnetism. is aware of the limitations of his knowledge of modern physics. Can understand the need for further education		[SK2] Assessment of progress of work		
	K6_U05		The student is able to use various sources of knowledge and learn independently		[SU2] Assessment of ability to analyse information [SU4] Assessment of ability to use methods and tools		
	K6_W02		Student uses commonly used mathematical notation in physical calculations, solves physical problems. Is able to explain the basic concepts of modern physics		[SW1] Assessment of factual knowledge [SW2] Assessment of knowledge contained in presentation [SW3] Assessment of knowledge contained in written work and projects		
Subject contents	- electric field issues- magnetic phenomena- corpuscular wave duality- atomic physics- Nuclear physics- basics of quantum mechanics						

Prerequisites and co-requisites	knowledge of physics from the previous semester		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	laboratory	50.0%	20.0%
	accounting classes	50.0%	40.0%
	exam	50.0%	40.0%
Recommended reading	Basic literature	M.A. Herman A. Kalestyński, L. Widomski "Podstawy fizyki dla kandydatów na wyższe uczelnie i studentów" PWN  J. Massalski "Fizyka dla inżynierów" NT  D. Halliday, R. Resnick, J. Walker Podstawy fizyki,PWN	
	Supplementary literature	R.Eisberg, R. Resnick, Fizyka kwantowa, PWN  A.A. Czerwiński Energia jądrowa i promieniotwórczość, OE  V. Acosta, C.L. Cowan, B.J. Graham, Podstawy fizyki współczesnej	
	eResources addresses	Podstawowe <a href="https://enauczanie.pg.edu.pl/moodle/course/view.php?id=26279">https://enauczanie.pg.edu.pl/moodle/course/view.php?id=26279</a> - Adresy na platformie eNauczanie: Fizyka III _ ćwiczenia rachunkowe - Moodle ID: 26278 <a href="https://enauczanie.pg.edu.pl/moodle/course/view.php?id=26278">https://enauczanie.pg.edu.pl/moodle/course/view.php?id=26278</a>	
	Example issues/ example questions/ tasks being completed	- based on the Bohr atom model, determine the energy of energy levels - describe the photoelectric phenomenon- explain the principle of operation of the nuclear reactor	
Work placement	Not applicable		