



## Subject card

Subject name and code	Electricity and magnetism, PG_00061906						
Field of study	Materials Engineering						
Date of commencement of studies	October 2023	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	2	Language of instruction			Polish		
Semester of study	3	ECTS credits			6.0		
Learning profile	general academic profile	Assessment form			exam		
Conducting unit	Division of Ceramics -> Institute of Nanotechnology and Materials Engineering -> Faculty of Applied Physics and Mathematics						
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Tadeusz Miruszewski					
	Teachers	dr inż. Leszek Wicikowski dr inż. Marek Chmielewski dr inż. Tadeusz Miruszewski					
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	15.0	30.0	0.0	0.0	75
	E-learning hours included: 0.0						
Additional information: E-Learning course will be available at the beginning of the semester.							
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	75		10.0		65.0	150
Subject objectives	Acquiring knowledge in the field of electricity and magnetism.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K6_U01] Can properly use selected analytical, simulation and experimental methods, as well as devices for measuring the fundamental properties of materials and technological processes.	the student is able to perform basic measurements in the field of electricity and magnetism.	[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_K01] Understands the need to improve professional and personal competencies; is conscious of own limitations and knows when to turn to experts, properly establishes priorities helping to accomplish tasks defined by oneself or others.	The student uses commonly used mathematical notation in physical calculations and solves physical problems. Is able to explain basic concepts of physics.	[SK2] Assessment of progress of work [SK3] Assessment of ability to organize work [SK5] Assessment of ability to solve problems that arise in practice
	[K6_U05] can learn independently	The student is able to use various sources of knowledge and learn independently.	[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_W02] has knowledge of physics and chemistry, useful for formulating and solving simple problems within the scope of materials science	The student uses commonly used mathematical notation in physical calculations and solves physical problems. Is able to explain the basic concepts of electricity and magnetism.	[SW3] Assessment of knowledge contained in written work and projects [SW2] Assessment of knowledge contained in presentation [SW1] Assessment of factual knowledge
Subject contents	Electric field issues, magnetic phenomena.		
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  Fizyka, tom 2, wyd. OpenStax	
	Supplementary literature	D. Halliday, R. Resnick, J. Walker Podstawy fizyki, PW	
	eResources addresses	Podstawowe <a href="http://brak">http://brak</a> - The link will be available after the semester will start. Adresy na platformie eNauczenie: Elektryczność i magnetyzm_Nanotechnologia_Inżynieria Materiałowa_2024/2025 - Moodle ID: 41654 <a href="https://enauczenie.pg.edu.pl/moodle/course/view.php?id=41654">https://enauczenie.pg.edu.pl/moodle/course/view.php?id=41654</a>	
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		

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