



## Subject card

Subject name and code	Dielectric Materials, PG_00035137						
Field of study	Nanotechnology						
Date of commencement of studies	October 2020	Academic year of realisation of subject			2022/2023		
Education level	first-cycle studies	Subject group			Optional subject group 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	3	Language of instruction			Polish		
Semester of study	6	ECTS credits			1.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Instytut Nanotechnologii i Inżynierii Materiałowej -> Faculty of Applied Physics and Mathematics						
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Natalia Wójcik					
	Teachers	dr hab. inż. Natalia Wójcik					
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	0.0	0.0	0.0	15
	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	15		0.0		0.0	15
Subject objectives	Learning about the modern amorphous materials and technological issues associated with their use.						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	K6_W07						
	K6_W06						
		The student knows the theoretical basis of the science of dielectrics. The student proposes the basic methods of testing the properties of dielectric materials.			[SW1] Assessment of factual knowledge		
	The student knows the theoretical basis of the science of dielectrics and the basic application of modern dielectric materials.			[SW1] Assessment of factual knowledge			
Subject contents	<ul style="list-style-type: none"><li>Electrical properties of dielectrics - basic concepts. Macroscopic properties of dielectrics.</li><li>Electrical properties of dielectrics - dielectric polarization mechanisms</li><li>Electrical conduction mechanisms in dielectrics</li><li>Dielectric in the alternating electric field - the description in the frequency domain.</li><li>Dielectric in the alternating electric field - a time domain.</li><li>Measurements of electrical parameters of dielectrics</li><li>Impedance spectroscopy in use</li><li>Dielectrics with special properties</li><li>Basic applications dielectrics.</li></ul>						
Prerequisites and co-requisites							
Assessment methods and criteria	Subject passing criteria	Passing threshold			Percentage of the final grade		
	Colloquium	51.0%			100.0%		
Recommended reading	Basic literature	<ul style="list-style-type: none"><li><i>Fizyka dielektryków, A. Chełkowski; PWN, 1972, 1993.</i></li><li><i>Elektrolity Stałe, Władysław Bogusz, Franciszek Krok; WNT, 1995.</i></li></ul>					
	Supplementary literature	None					

	eResources addresses	Adresy na platformie eNauczenie: Materiały dielektryczne - Moodle ID: 29029 <a href="https://enauczanie.pg.edu.pl/moodle/course/view.php?id=29029">https://enauczanie.pg.edu.pl/moodle/course/view.php?id=29029</a>
Example issues/ example questions/ tasks being completed	Describe process of orientational polarization.	
Work placement	Not applicable	