



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">Electrical properties of dielectrics - basic concepts. Macroscopic properties of dielectrics.Electrical properties of dielectrics - dielectric polarization mechanismsElectrical conduction mechanisms in dielectricsDielectric in the alternating electric field - the description in the frequency domain.Dielectric in the alternating electric field - a time domain.Measurements of electrical parameters of dielectricsImpedance spectroscopy in useDielectrics with special propertiesBasic applications dielectrics.						
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"><i>Fizyka dielektryków, A. Chełkowski; PWN, 1972, 1993.</i><i>Elektrolity Stałe, Władysław Bogusz, Franciszek Krok; WNT, 1995.</i>				
	Supplementary literature		None				

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