



Subject card

Subject name and code	Physico-mechanical measurements, PG_00061918						
Field of study	Materials Engineering, Materials Engineering						
Date of commencement of studies	October 2024	Academic year of realisation of subject				2026/2027	
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	3	Language of instruction				Polish	
Semester of study	5	ECTS credits				4.0	
Learning profile	general academic profile	Assessment form				exam	
Conducting unit	Department of Polymer Technology -> Faculty of Chemistry -> Faculties of Gdańsk University of Technology						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. inż. Łukasz Piszczyk				
	Teachers		dr hab. inż. Łukasz Piszczyk				
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	30.0	0.0	0.0	45
	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	45		5.0		50.0	100
Subject objectives	To provide knowledge and skills in determining the physical and mechanical properties of materials: viscosity, density, hardness, mechanical properties under static and dynamic conditions, and determining water content.						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	[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.	Students are constantly learning in order to improve their professional and personal skills			[SK4] Assessment of communication skills, including language correctness [SK2] Assessment of progress of work		
	[K6_W02] has knowledge of physics and chemistry, useful for formulating and solving simple problems within the scope of materials science	The student is able to solve problems in the field of materials science (e.g., physical and rheological properties) by applying knowledge of chemistry and physics			[SW1] Assessment of factual knowledge [SW3] Assessment of knowledge contained in written work and projects		
	[K6_W06] Knows selected methods, techniques, tools and materials used in solving simple engineering problems within the scope of materials engineering.	The student uses measurement tools and techniques to solve tasks and problems in the field of materials engineering			[SW1] Assessment of factual knowledge [SW2] Assessment of knowledge contained in presentation		
[K6_U02] Can operate typical laboratory equipment and analyze material tests	Students use standard research and laboratory equipment to analyze the physical and mechanical properties of materials			[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	Course content – lecture Physical and mechanical properties of materials: definitions, basic information on the principles and methods for determining physical and mechanical properties		
	Course content – laboratory determination of the physical and mechanical properties of materials such as: viscosity, viscoelastic properties, phase transition temperatures, crystallinity, thermal stability, thermal conductivity, hardness, rebound, impact strength, mechanical properties under static conditions (bending and compression), and determination of water content.		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Passing lectures	50.0%	40.0%
	lab pass	50.0%	60.0%
Recommended reading	Basic literature	M. Blicharski., Wstęp do inżynierii materiałowej, Wydawnictwo Naukowo Techniczne, Warszawa 2001	
		T. Broniewski, J. Kapko, W. Płaczek, J. Thomalla, Metody badań i ocena właściwości tworzyw sztucznych, Wydawnictwo Naukowo-Techniczne, Warszawa 2000.	
		D. Żuchowska, Polimery Konstrukcyjne, Wydawnictwo Naukowo-Techniczne, Warszawa 2000.	
	Supplementary literature	H. Galina, Fizyka materiałów polimerowych, makrocząsteczki i ich układy, Wydawnictwo Naukowo-Techniczne, Warszawa 2008.	
	eResources addresses		
Example issues/ example questions/ tasks being completed	<ol style="list-style-type: none"> 1. How to determine the density of foamed materials. 2. List the methods used to test materials. 3. Define the strength of materials. 4. Methods for determining the viscosity of macromolecular compounds. 		
Practical activities within the subject	Not applicable		

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