



## Subject card

Subject name and code	, PG_00058697						
Field of study	Materials Engineering, Materials Engineering						
Date of commencement of studies	February 2024	Academic year of realisation of subject			2024/2025		
Education level	second-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	1	Language of instruction			Polish		
Semester of study	2	ECTS credits			5.0		
Learning profile	general academic profile	Assessment form			exam		
Conducting unit	Department of Polymers Technology -> Faculty of Chemistry						
Name and surname of lecturer (lecturers)	Subject supervisor		prof. dr hab. inż. Janusz Datta				
	Teachers		prof. dr hab. inż. Janusz Datta				
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	30.0	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		5.0		60.0	125
Subject objectives	Indication of work on a database of polymeric construction materials for the choice of optimal material and method of production of the technical product, stress analysis and creating technical elements at engineering drawings.						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	K7_K02	Learns the databases of raw materials in terms of choosing the optimal material Can choose the polymer material to a product;			[SK4] Assessment of communication skills, including language correctness		
	K7_U03	Learns about the methods of choosing a polymer material for technical constructions			[SU3] Assessment of ability to use knowledge gained from the subject		
	K7_W01	Prepares drawings of individual elements a selected construction made of polymeric material			[SW2] Assessment of knowledge contained in presentation		
	K7_U04	Get to know polymeric construction materials, learn about layered constructions and their technical applications			[SU1] Assessment of task fulfilment		
K7_W06	Analyzes the figures of selection material. Calculates strength of product made of selected polymeric material			[SW3] Assessment of knowledge contained in written work and projects			
Subject contents	Review of construction polymeric materials. Definition of property of engineering materials. Mechanical proprieties: critical coefficient intensities of tensions, logarithmic dekrement suppressions, coefficient of fatigue. Thermal proprieties: thermal conductivity, heat capacity, glass transition temperaure, melting temperature, resistance to thermal shocks, coefficient of leveling of temperature. Hysteresis. Ways of presentations of properties of construction materials. Graphs of selection of material: Young Module-Density, Tensile Strength Density, Young Module Tensile Strength & others. Functionality coefficients with regarding of shape.. Methods of production and design. Production method influence on product design. Overview of polymeric structural materials.						
Prerequisites and co-requisites	General knowledge of polymeric materials. Basic knowledge of material strength and of technical drawing						

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	tests + reports	50.0%	50.0%
	test	50.0%	50.0%
Recommended reading	Basic literature	1) Ashby M.F., Dobór materiałów w projektowaniu inżynierskim, WNT, Warszawa 1998  2) Żuchowska D., Polimery konstrukcyjne, WNT, Warszawa 1995.  3) Ward J.M., Mechaniczne własności polimerów jako tworzyw konstrukcyjnych, PWN, Warszawa 1975.	
	Supplementary literature	Poradnik: Konstrukcje z tworzyw sztucznych, WEKA Sp.z.o.o., Warszawa 2000.	
	eResources addresses	Adresy na platformie eNauzanie:	
Example issues/ example questions/ tasks being completed	1. How are polymer-metal structures called SPSs made? 2. In what circumstances are structural material selection charts used? 3. List the methods of manufacturing tanks from: (a) thermoplastics, (b) duroplastics 4. On what basis are the functional requirements used to select a polymer material for a product determined?		
Work placement	Not applicable		