GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Polymeric Construction Materials, PG_00039686		
Field of study	Materials Engineering, Materials Engineering, Materials Engineering		
Date of commencement of studies	February 2022	Academic year of realisation of subject	2022/2023
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	4.0
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 dr inż. Paulina Parcheta-Szwindowska dr inż. Marcin Włoch	

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	35.0	100

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 datebases of raw materials in terms of choosing the optimal material Can choose the polimer material to a product;	[SK4] Assessment of communication skills, including language correctness
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
K7_U04	Get to know polymeric construction materials, learn about layered constructions and their technical applications	[SU1] Assessment of task fulfilment
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

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 conductivy, heat capacity, glass transition temperaure, melting temperature, resistance to thermal shocks, coefficient of leveling of temperature. Ways of presentations of properties of construction materials. Graphs of selection of material: Young Module- Density, Tensile Strength – Density, Young Module –Tensile Strength . Selection of material regardless the shape of section of manufactured product. Coefficients of functionality. Examples. Procedure for estimation of functionality coefficients. Maximalizing functionality criteria. Selection of polymeric materials for flexible construction parts. Shape coefficients. Functionality coefficients with regarding of shape. Examples. Methods of production and design. Production method influence on product design.

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
	test	50.0%	50.0%
	tests + raports	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		
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		