



Subject card

Subject name and code	Polymers in sport, PG_00071019						
Field of study	Mathematics						
Date of commencement of studies	October 2025	Academic year of realisation of subject			2025/2026		
Education level	second-cycle studies	Subject group			Humanistic-social subject group		
Mode of study	Full-time studies	Mode of delivery			e-learning		
Year of study	1	Language of instruction			Polish		
Semester of study	2	ECTS credits			2.0		
Learning profile	general academic profile	Assessment form			assessment		
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. Michał Strankowski				
	Teachers		dr hab. inż. Michał Strankowski				
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	0.0	0.0	0.0	30
	E-learning hours included: 30.0						
	eNauczanie source addresses: Moodle ID: 3638 Polimery w sporcie 2026 https://enauczanie.pg.edu.pl/2025/course/view.php?id=3638						
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	30		2.0		18.0	50
Subject objectives	The aim of the course is to demonstrate the multidimensional impact of modern polymer technologies on contemporary physical culture. Students will not only become familiar with various types of advanced materials (such as composites and nanocomposites) but, above all, will learn to interpret their role in overcoming the limitations of the human body and analyze the social, ethical, and ecological consequences resulting from their widespread use in both amateur and professional sports.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K7_K71] is able to explain the need to apply knowledge from humanistic, social, economic or legal sciences in order to function in a social environment		The student is able to define the basic groups of polymer materials and knows their possible applications.		[SK4] Assessment of communication skills, including language correctness		
	[K7_U71] is able to apply knowledge from humanistic, social, economic or legal sciences in order to solve problems		The student makes proper use of the acquired knowledge concerning modern polymer materials.		[SU2] Assessment of ability to analyse information		
	[K7_W71] has general knowledge in humanistic, social, economic or legal sciences, including their fundamentals and applications		The student has information about polymer materials used in sports.		[SW1] Assessment of factual knowledge		
Subject contents	Course content – lecture Do you run, cycle, or swim? During these activities, you engage in a direct relationship with modern polymer technologies that are redefining the limits of human potential. The aim of this lecture is to provide a critical analysis of the role of plastics in sport ranging from their impact on performance enhancement (speed, distance, and endurance) to the social and ethical consequences of their widespread use. While the course provides an accessible introduction to various types of materials (including advanced composites and nanocomposites) and their manufacturing processes, the primary focus is placed on their function within sports culture. Together, we will examine the phenomenon of "technological doping," issues of economic exclusion regarding access to innovation, and the ecological challenges posed by the mass production of synthetic gear and apparel. This course enables participants to become conscious consumers and participants in physical culture, capable of evaluating how modern materials science shapes contemporary society, athlete safety, and our relationship with the natural environment.						
Prerequisites and co-requisites							

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Pass	50.0%	100.0%
Recommended reading	Basic literature	<ol style="list-style-type: none"> 1. Nosal, P. (2015). Technologia i sport. Poznań: Wydawnictwo Naukowe Wydziału Nauk Społecznych UAM. 2. Rabek, J. F. (2017). Współczesna wiedza o polimerach. T. 2, Polimery naturalne, polimery modyfikowane, zastosowanie polimerów w medycynie, farmacji i technice. Warszawa: Wydawnictwo Naukowe PWN. 3. Morgan, W. J. (red.) (2024). Ethics in Sport. Fourth Edition. Champaign, IL: Human Kinetics. 4. Murray, T. H. (2016). The Ethics of Sports Technologies and Human Enhancement. [w:] The Oxford Handbook of Ethics of AI. Oxford: Oxford University Press. 5. Jenkins, M. (red.) (2003). Materials in Sports Equipment. Cambridge: Woodhead Publishing. 	
	Supplementary literature	Online literature databases related to polymer materials used in sports.	
	eResources addresses	Supplementary https://www.academia.edu/38979422/Technologia_w_sporcie_Technologia_in_sport - Technology in sport https://www.futurelearn.com/info/courses/everyday-chemistry/0/steps/22347 - The Application of Polymers in Sports	
Example issues/ example questions/ tasks being completed	-		
Practical activities within the subject	Not applicable		

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