



Subject card

Subject name and code	, PG_00065838						
Field of study	Technologie recyklingu materiałów polimerowych						
Date of commencement of studies	October 2024		Academic year of realisation of subject		2025/2026		
Education level	second-cycle studies		Subject group		Specialty 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	2		Language of instruction		Polish		
Semester of study	3		ECTS credits		3.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Department of Polymer Technology -> Faculty of Chemistry -> Wydziały Politechniki Gdańskiej						
Name and surname of lecturer (lecturers)	Subject supervisor		prof. dr hab. inż. Janusz Datta				
	Teachers		prof. dr hab. inż. Janusz Datta				
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	15.0	0.0	0.0	30
	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	30		5.0		40.0	75
Subject objectives	Familiarizing students with current technologies for the management of polymer waste (dedicated forms of recycling for waste from major production areas (electronics, automobiles, construction), including sorting, identification, and streamlining of waste, reuse of recyclates, Prerequisites and additional requirements Knowledge of the production and chemical structure of bulk polymers; general information on environmental protection						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K7_W06] Knows the theoretical basics the functioning of scientific equipment in the fields of science and scientific disciplines relevant to materials engineering.		The student knows the basics of working with scientific equipment in the field of materials engineering.		[SW1] Ocena wiedzy faktograficznej		
	[K7_U06] Can evaluate usefulness and feasibility of using new achievements (techniques and technologies) within the scope of materials science.		The student is able to assess the usefulness of new scientific achievements in the field of materials science.		[SU4] Ocena umiejętności korzystania z metod i narzędzi		
	[K7_K02] Is aware of the importance of non-technical aspects and effects of engineering, including the influence on the environment and resulting responsibility for the decisions.		The student understands the impact of various engineering decisions and activities on the natural environment.		[SK5] Ocena umiejętności rozwiązywania problemów występujących w praktyce		
Subject contents	Course content – lecture European Union regulations on plastic waste recycling. Sustainable development. Classification of plastic waste based on its place of origin and recyclability. Waste segregation and identification. Collection and recycling of polymer waste from the automotive, construction, electronics, and household industries. Biodegradation. Recycling of laminates and multilayer packaging. Eco-friendly design. Reuse of plastic waste. Alternative fuels.						
	Course content – laboratory Performing tasks specified by instructors regarding the preparation of various streams of polymer waste, their examination, treatment, and processing.						
Prerequisites and co-requisites	Knowledge of the production and chemical structure of bulk polymers; general information on environmental protection						

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	raport	100.0%	50.0%
	pisemne zaliczenie	50.0%	50.0%
Recommended reading	Basic literature	1. A. Błedzki i innni. Odzysk i recykling materiałów polimerowych,Wydawnictwo Naukowe PWN, Warszawa, 2021 2. Praca zbiorowa pod redakcją A. Błędzkiego, Recykling materiałów polimerowych, WNT Warszawa 1997 3. Praca zbiorowa pod redakcją A Prociak i in. Materiały poliuretanowe, PWN, Warszawa, 2014.	
	Supplementary literature	Poradnik TWORZYWA SZTUCZNE W PRAKTYCE 2007 Verlag Dashofer, Warszawa	
	eResources addresses		
Example issues/ example questions/ tasks being completed	1) Propose a method for the effective recycling of car seats. 2) Select a recycling technique and describe the necessary steps for recycling waste consisting of PA profiles and PS cups.		
Practical activites within the subject	Not applicable		

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