



## Subject card

Subject name and code	Recycling of Polymer Materials, PG_00039816						
Field of study	Materials Engineering, Materials Engineering, Materials Engineering						
Date of commencement of studies	October 2021		Academic year of realisation of subject		2024/2025		
Education level	first-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	4		Language of instruction		Polish		
Semester of study	7		ECTS credits		2.0		
Learning profile	general academic profile		Assessment form		assessment		
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	0.0	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		1.0		19.0	50
Subject objectives	Acquainting students with current methods of managing waste from polymer materials (dedicated forms of recycling for waste from main production areas (electronics, cars, construction), including sorting, identification and disposal of waste, Reuse of recyclates						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	K6_K01		The student understands the need to improve their professional and personal competences		[SK5] Assessment of ability to solve problems that arise in practice		
	K6_W03		He has basic knowledge that allows him to generally connect the properties of polymeric materials with the structure		[SW2] Assessment of knowledge contained in presentation		
	K6_U03		The student is able to make a critical analysis of the processes used in the recycling of waste from polymeric materials		[SU2] Assessment of ability to analyse information		
Subject contents	European Union regulations for recycling of plastic waste. Sustainable development. Systematics of plastic waste according to the place of their formation and the possibility of reprocessing. Waste segregation and identification. Acquisition and recycling of polymer waste from the automotive, construction, electronics and household industries. Biodegradation. Recycling of laminates and multi-layer packaging. Ecological design, Reuse of plastic waste. Alternative fuels.						
Prerequisites and co-requisites	Knowledge of production and chemical structure of main polymers; general knowledge of environmental protection.						

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	laboratory	100.0%	50.0%
	lecture colloquium	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	Adresy na platformie eNauczanie:	
Example issues/ example questions/ tasks being completed	1) Suggest a course of action for effective recycling of car seats.  2) Choose a recycling technique and describe the necessary steps to recycle PA profile waste and the second stream is PS cups.		
Work placement	Not applicable		