



Subject card

Subject name and code		Recycling and management of plastic waste, PG_00057691						
Field of study		Green Technologies						
Date of commencement of studies		October 2023	Academic year of realisation of subject			2025/2026		
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		3	Language of instruction			Polish		
Semester of study		5	ECTS credits			3.0		
Learning profile		general academic profile	Assessment form			assessment		
Conducting unit		Department of Polymer Technology -> Faculty of Chemistry						
Name and surname of lecturer (lecturers)		Subject supervisor		dr inż. Ewa Głowińska				
		Teachers						
Lesson types and methods of instruction		Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
		Number of study hours	15.0	0.0	30.0	0.0	0.0	45
		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	45	2.0		28.0	75	
Subject objectives		To acquaint students with basic methods of managing plastic waste and biomaterials.						
Learning outcomes		Course outcome		Subject outcome		Method of verification		
		[K6_W03] has a basic knowledge of soil, air and water pollutants, design and supervision of environmentally friendly technologies and technologies which do not produce waste, knows technology of cleaning and neutralization of industrial waste and wastewater management, has a basic understanding of the theoretical basis of methods and types of apparatus used in chemical analysis of environmental pollutants		The student is able to use knowledge of environmental protection to plan waste-free technologies in the field of plastics.		[SW1] Assessment of factual knowledge [SW2] Assessment of knowledge contained in presentation		
		[K6_U05] can formulate and solve engineering tasks analytical methods, simulation as well as experimental, able to apply knowledge of basic physics and mathematics to analyze the results of experiments, is able to analyze and assess existing technical solutions		The student uses knowledge of the basics of physics, chemistry and mathematics to plan processes and operations related to plastic recycling.		[SU1] Assessment of task fulfilment [SU5] Assessment of ability to present the results of task		
		[K6_U04] capable of formulating and solving design tasks in the field of environmental technology to recognize their non-technical aspects, including environmental, economic and legal. Is capable of applying the principles of occupational health and safety. Is able to make initial assessment of engineering solutions and actions		Student planuje prace laboratoryjne zachowując zasady bezpieczeństwa i higieny pracy oraz mając na uwadze środowisko naturalne.		[SU5] Assessment of ability to present the results of task [SU1] Assessment of task fulfilment		

Subject contents	<ol style="list-style-type: none"> 1. Polymers and plastics, basics of production and identification of plastics. 2. Sources of plastic waste (post-process and post-consumer waste). 3. European Union regulations on the recycling of plastic waste. 4. Methods of separating plastic waste and separation technologies. 5. Methods and technologies in plastic recycling. 6. Closed loop in plastics production. 		
Prerequisites and co-requisites	None		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Test	50.0%	60.0%
	Report	50.0%	40.0%
Recommended reading	Basic literature	<ol style="list-style-type: none"> 1. Szlezyngier Włodzimierz , Brzozowski Zbigniew K., Tworzywa ogólnego zastosowania, Wydawnictwo Oświatowe FOSZE, 2013. 2. Praca zbiorowa pod redakcją A. Błędzkiego, Recykling materiałów polimerowych, WNT Warszawa 1997 	
	Supplementary literature	1. Poradnik tworzywa sztuczne w praktyce Verlag Dashofer, Warszawa, 2007	
	eResources addresses	Adresy na platformie eNauczanie:	
Example issues/ example questions/ tasks being completed	Knowledge of the chemical structure of bulk polymers; knowledge of how to identify plastic waste; knowledge of plastic separation and recycling methods. Knowledge of issues related to plastics in the circular economy, as well as life cycle assessment (LCA).		
Work placement	Not applicable		

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