



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 2022		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	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 Polymers Technology -> Faculty of Chemistry						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Ewa Głowińska				
	Teachers		dr inż. Ewa Głowińska dr inż. Krzysztof Formela dr inż. Marcin Włoch				
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_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 zachowujac zasady bezpieczenstwa i higieny pracy oraz majac na uwadze srodowisko naturalne.	[SU1] Assessment of task fulfilment [SU5] Assessment of ability to present the results of task
	[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.	[SU5] Assessment of ability to present the results of task [SU1] Assessment of task fulfilment
	[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.	[SW2] Assessment of knowledge contained in presentation [SW1] Assessment of factual knowledge
Subject contents	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
	Report	50.0%	40.0%
	Test	50.0%	60.0%
Recommended reading	Basic literature	1. Szlezzyngier 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: Recykling i zagospodarowanie odpadów z tworzyw sztucznych - Moodle ID: 39369 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=39369	
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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