

Subject card

Subject name and code	Monographic lecture - Advanced oxidation processes, PG_00080877						
Field of study	Chemistry						
Date of commencement of studies	October 2024	Academic year of realisation of subject			2025/2026		
Education level	Master's studies	Subject group			Obligatory subject group in the field of study Optional subject group		
Mode of study	full-time studies	Mode of delivery			at the university		
Year of study	2	Language of instruction			Polish		
Semester of study	4	ECTS credits			3.0		
Learning profile	academic	Assessment form			credit		
Conducting unit	Laboratory of Photocatalysis -> Department of Environmental Technology -> Faculty of Chemistry -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor	prof. dr hab. inż. Adriana Zaleska-Medynska					
	Teachers						
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: 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	To familiarize students with the mechanisms of degradation of pollutants in selected modern oxidation processes						
	To familiarize students with selected devices used to purify liquid and gaseous streams using AOP						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	[CHEMMU2_K01] Knows the limitations of her/his own knowledge; understands the need for further education and can inspire other people to do so.	can independently search for additional literature and expand knowledge based on it			[SK5] implementation of a problem task		
	[CHEMMU2_W05] Has extended knowledge in the field of the specialisation studied.	uses knowledge when selecting appropriate techniques for oxidizing pollutants			[SW5] implementation of a problem task		
	[CHEMMU2_W11] Demonstrates general knowledge about the current trends in the development of chemistry as a science and the latest discoveries in this field.	can apply the latest solutions in the field of advanced oxidation processes			[SW2] presentation/project/paper/report [SW5] implementation of a problem task		
	[CHEMMU2_W01] Uses knowledge of spectroscopic methods of chemical compound analysis.	is able to perform appropriate laboratory analyzes for specific problems			[SW5] implementation of a problem task		
Subject contents	Characteristics and division of advanced oxidation methods (AOP). The mechanism of oxidation of pollutants in the wet air oxidation method and supercritical oxidation. Characteristics of chemical, photochemical and electrochemical processes for removing pollutants from water, soil and air. Production and use of modern materials with catalytic properties in AOP methods. The use of nanostructures in AOP methods. The use of ozonation for disinfection, removal of organic compounds from the water phase and deodorization of air streams.						

Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	oral exam	51.0%	100.0%
Recommended reading	Basic literature	Barbusiński, Zaawansowane utlenianie ścieków przemysłowych, Politechnika Śląska, 2013r. Burczyk B. Zielona Chemia, Oficyna Wydawnicza Politechniki Wrocławskiej, Wrocław 2006 Lewandowski W.M. Proekologiczne źródła energii odnawialnej, WNT W-wa 2001 Zarzycki R., Zaawansowane metody utleniania, Politechnika Wrocławska, Wrocław 2002	
	Supplementary literature	not required	
	eResources addresses		
Example issues/ example questions/ tasks being completed	not required		
Work placement	Not applicable		

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