University of Gdańsk

Subject card

Subject name and code	Advanced processes in environment protection, PG_00121142						
Field of study	Chemical Business, Chemistry, Environmental Protection						
Date of commencement of studies	February 2026		Academic year of realisation of subject	2026/2027			
Education level	Master's studies		Subject group	Optional subject group			
Mode of study	full-time studies		Mode of delivery	at the university			
Year of study	1		Language of instruction	English			
Semester of study	2		ECTS credits	2.0			
Learning profile	academic		Assessment form	credit			
Conducting unit	Laboratory of Advanced Oxidation Processes -> Department of General and Inorganic Chemistry -> Faculty of Chemistry -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor	prof. dr hab. Ewa Siedlecka					
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	20.0	0.0	0.0	20
	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	20		3.0	27.0	50	
Subject objectives	- introduction of basic issues related to advanced processes used in synthesis - introduction of basic issues related to advanced processes related to environmental protection						

Learning outcomes

Course outcome	Subject outcome	Method of verification
[CHEMMU2_W11] Demonstrates general knowledge about the current trends in the development of chemistry as a science and the latest discoveries in this field.	classifies advanced processes used in synthesis and environmental protection	[SW1] oral statement/ conversation/discussion [SW2] presentation/project/paper/ report
[CHEMMU2_U01] Plans and implements chemical experiments of medium complexity.	performs experiments with an understanding based on instructions	[SU1] oral statement/conversation/ discussion [SU8] observation of student's independent or team work
[CHEMMU2_K01] Knows the limitations of her/his own knowledge; understands the need for further education and can inspire other people to do so.	understands the need to learn; cooperates in a group, taking on different roles; demonstrates creativity in determining the necessary priorities for the implementation of tasks; understands the social aspects of practical use of knowledge and skills, as well as those related to responsibility	[SK1] oral statement/conversation/ discussion
[CHEMMU2_U06] Presents the results of scientific discoveries in chemistry and related disciplines in an understandable way.	describes the basic issues related to advanced processes used in synthesis and industrial production	[SU1] oral statement/conversation/ discussion [SU2] presentation/project/paper/ report
[CHEMMU2_W07] Selects experimental and theoretical techniques to the extent necessary to understand the description and modelling of medium complexity chemical processes.	proposes solutions to environmental problems related to reducing anthropogenic pollution; presents correct chemical argumentation in an understandable way - both orally and in writing; presents and explains advanced processes, using chemical knowledge in correlation with other sciences;	[SW1] oral statement/ conversation/discussion [SW2] presentation/project/paper/ report

Subject contents

Production of fuels and polymers from waste as technologies ensuring sustainable development of society, synthesis of biodegradable materials, and selective synthesis supported by electromagnetic radiation. Advanced processes in environmental protection: water disinfection, removal of pharmaceuticals and microplastics, use of biological membrane reactors, electrochemical and photocatalytic oxidation as methods of removing micropollutants or disinfecting water, Fenton method for disposal of hazardous waste

Prerequisites and co-requisites

non

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
activity during classes	51.0%	20.0%
carrying out work assigned by the teacher	51.0%	80.0%

Recommended reading

Basic literature	references given by the teacher during the class
Supplementary literature	non
eResources addresses	

Example issues/ example questions/ tasks being completed

Work placement

Not applicable

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