

Subject card

Subject name and code	Innovative technologies for water treatment, PG_00163507						
Field of study	Chemical Business, Chemistry, Environmental Protection						
Date of commencement of studies	October 2023		Academic year of realisation of subject		2025/2026		
Education level	Bachelor's studies		Subject group		Optional subject group		
Mode of study	full-time studies		Mode of delivery		at the university		
Year of study	3		Language of instruction		English		
Semester of study	6		ECTS credits		2.0		
Learning profile	academic		Assessment form		credit		
Conducting unit							
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Aleksandra Pieczyńska				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	15.0	0.0	0.0	15
	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	15		10.0		25.0	50
Subject objectives	The aim of the course is to familiarize students with technologies used to purify water and sewage.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[BCHINŻ_W06] Enumerates basic unit processes and describes issues in the field of technology and chemical engineering.		draws diagrams of selected installations of sewage treatment and water treatment plants explains the processes occurring during sewage treatment and water treatment		[SW2] presentation/project/paper/report		
	[BCHINŻ_U01] On the basis of the acquired knowledge, identifies, analyses and solves engineering tasks and problems in broadly understood chemistry.		lists the types of water and sewage pollution and the sources of their formation defines parameters for assessing the quality of water and sewage, describes the methods for their marking		[SU1] oral statement/conversation/discussion [SU2] presentation/project/paper/report		
	[BCHINŻ_K01] Identifies the level of her/his own knowledge and skills as well as the need to update engineering knowledge, continuous professional training and personal development.		works in a team when performing laboratory tests and developing results demonstrates creativity in independent and team work		[SK6] demonstration of practical skills		
	[BCHINŻ_U02] Uses basic methods, techniques and tools in formulating and solving engineering tasks in the field of chemistry.		conducts laboratory tests according to instructions. explains the selection of analytical techniques for the analysis of a given pollutant prepares written reports on the implementation of classes		[SU1] oral statement/conversation/discussion [SU6] demonstration of practical skills		
Subject contents	During the classes, students will learn about the types of water pollution and selected technologies used to purify water and sewage. The processes studied include ion exchange, advanced oxidation methods, and adsorption.						

Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Activity in classes	51.0%	30.0%
	r/Report	51.0%	70.0%
Recommended reading	Basic literature	Wastewater Treatment Advanced Processes and Technologies, D. G. Rao, R. Senthilkumar, J. Anthony Byrne, S. Feroz, IWA Publishing, 2013Anielak A. M. Chemiczne i fizykochemiczneoczyszczanie ścieków Wydawnictwo Naukowe PWN, Warszawa 2000Kowal A. L., Świdarska-Bróż M., Oczyszczanie wody, Wydawnictwo Naukowe PWN, Warszawa 2007	
	Supplementary literature	Mihaela I. Stefan, Advanced Oxidation Processes for Water Treatment, IWA Publishing, 2018	
	eResources addresses		
Example issues/ example questions/ tasks being completed	determination of basic water parametersproposing technology to remove selected contaminants from water		
Work placement	Not applicable		

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