



## Subject card

Subject name and code	Chemistry II, PG_00043533						
Field of study	Environmental Engineering						
Date of commencement of studies	October 2020		Academic year of realisation of subject			2021/2022	
Education level	first-cycle studies		Subject group			Obligatory subject group in the field of study 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	2		Language of instruction			Polish	
Semester of study	3		ECTS credits			3.0	
Learning profile	general academic profile		Assessment form			exam	
Conducting unit	Department of Environmental Engineering Technology -> Faculty of Civil and Environmental Engineering						
Name and surname of lecturer (lecturers)	Subject supervisor		prof. dr hab. inż. Hanna Obarska-Pempkowiak				
	Teachers						
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	15.0	0.0	0.0	0.0	30
	E-learning hours included: 0.0						
	Adresy na platformie eNauczanie:						
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	Providing to students with basic knowledge about the systematics and structure of organic compounds as well as the distribution and meaning of organic, natural and anthropogenic compounds in the natural environment, especially in water.						
Learning outcomes	Course outcome		Subject outcome			Method of verification	
	[K6_W03] has a structured and theoretically founded knowledge in the field of chemistry and biology, including knowledge necessary to understand the technological processes related to water treatment, wastewater treatment, waste management and sludge management		The student has ordered and theoretically founded knowledge of chemistry necessary to understand technological processes related to water and sewage management.				
	[K6_U09] is able to use well-chosen methods and measuring devices that enable determination of basic parameters of the water treatment process and wastewater treatment; can perform simple laboratory tests leading to the assessment of water quality, pollutant load in sewage		Student is able to do simple laboratory tests leading to the assessment of water quality and pollution load in sewage				
Subject contents	Chemistry - organic compounds, their specificity, reasons for the diversity of carbon compounds. Bonds in carbon compounds, hybridization of orbitals of carbon atoms. Types of reactions in organic chemistry. Aliphatic hydrocarbons: alkanes, alkenes, alkynes, alkadienes (polymerization). Aromatic hydrocarbons - benzene and its derivatives. Polycyclic aromatic hydrocarbons. Alcohols, organic acids, fats, amino acids, peptides and proteins. Admixtures and organic pollutants of water. Structure and physico-chemical properties of humic acids. Functions and significance of humic acids in the environment. Surface-active substances. Petroleum products. Pesticides. Dioxins. PCBs.						
Prerequisites and co-requisites							

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Lecture exam	60.0%	60.0%
	Passing the laboratory	50.0%	40.0%
Recommended reading	Basic literature	-	
	Supplementary literature	-	
	eResources addresses		
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		