



Subject card

Subject name and code	Chemistry II, PG_00049144						
Field of study	Civil Engineering						
Date of commencement of studies	October 2021		Academic year of realisation of subject			2022/2023	
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			1.0	
Learning profile	general academic profile		Assessment form			assessment	
Conducting unit	Department of Environmental Engineering Technology -> Faculty of Civil and Environmental Engineering						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Małgorzata Szopińska				
	Teachers		mgr inż. Filip Pawlak dr inż. Grażyna Gałęzowska dr inż. Aleksandra Sokołowska dr inż. Małgorzata Szopińska				
Lesson types and methods of instruction	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		2.0		8.0	25
Subject objectives	Mastering the basic knowledge of general chemistry needed for further study of major subjects. To familiarize students with basic laboratory equipment and laboratory work. Developing skills in performing chemical calculations, own laboratory work, honest preparation of results and drawing conclusions from conducted experiments.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K6_W01] has knowledge of selected branches of mathematics, physics and chemistry, which is a base of construction subjects, such as construction theory and material technology and id needed to formulate and solve typical problems of civil engineering	01 - knows and understands the basic concepts and laws of general chemistry discussed during classes, and knows how to apply them to describe chemical processes; 02 - can use the known laws and dependencies for chemical calculations (in particular regarding the concentration of solutions, pH); 03 - uses laboratory equipment to perform and interpret simple quantitative determinations; 04 - is aware of the dangers which may occur in a chemical laboratory and knows and compiles the health and safety rules.	
	[K6_K02] is responsible for reliability of obtained results of research and its interpretation, formulates conclusions and describes results of own work	01 - can cooperate in a small student team by performing chemical determinations and prepare reports on result obtained uduring performed experiments;	
Subject contents	<p>The following issues will be discussed as part of the accounting part</p> <p>(1) moles, acids and bases, oxidation states, reaction equations, stoichiometry</p> <p>(2) concentrations and solutions</p> <p>(3) pH, dissociation</p> <p>The following exercises will be performed during the laboratory part:</p> <p>EXERCISE 1. The water color and aggressive carbon dioxide</p> <p>EXERCISE 2. Water hardness, acidity and alkalinity</p> <p>EXERCISE 3. Chlorides and sulphates</p> <p>EXERCISE 4. Oxidability (COD determination using the permanganate method)</p>		
Prerequisites and co-requisites	Basic term and laws of chemistry. The structure of the atom (atomic nucleus, electronic structure of the atom). Periodic table of elements and the law of periodicity. Classes of chemical compounds. Types of chemical reactions. Equilibria in aqueous electrolyte solutions.		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	computational part	60.0%	33.3%
	final test	60.0%	33.4%
	laboratory part	60.0%	33.3%
Recommended reading	Basic literature	Jerzy Prejzner Chemistry auditorium exercises for students of hydrotechnics, Publisher: Gdansk University of Technology.	
	Supplementary literature	Obliczenia chemiczne, praca zbiorowa pod red. J. Ciby, Wyd. Pol. Śl., Gliwice 2005.	
	eResources addresses	Adresy na platformie eNauczanie:	
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		