



Subject card

Subject name and code	Inorganic chemistry laboratory, PG_00061896						
Field of study	Materials Engineering						
Date of commencement of studies	October 2023	Academic year of realisation of subject			2023/2024		
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	1	Language of instruction			Polish		
Semester of study	2	ECTS credits			3.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Department of Inorganic Chemistry -> Faculty of Chemistry						
Name and surname of lecturer (lecturers)	Subject supervisor	prof. dr hab. inż. Jarosław Chojnacki					
	Teachers	dr inż. Daria Kowalkowska-Zedler dr inż. Aleksandra Ziolkowska					
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	30.0	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	10.0		35.0	75	
Subject objectives	Confrontation of knowledge on reactivity of basic classes of inorganic substances: elements, acids, bases and salts with laboratory practice. Consolidation of material learnt during the first semester of Chemistry I. Basics of classical qualitative analysis of inorganic ions.						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	[K6_U01] Can properly use selected analytical, simulation and experimental methods, as well as devices for measuring the fundamental properties of materials and technological processes.	The Student selects a method of analysis which allows unambiguous identification of the sample			[SU4] Assessment of ability to use methods and tools		
	[K6_W02] has knowledge of physics and chemistry, useful for formulating and solving simple problems within the scope of materials science	Gain knowledge about chemical reactivity of substances in solutions: salts, acids, alkalis and properties of popular metals			[SW1] Assessment of factual knowledge		
	[K6_U05] can learn independently	Independently investigates and interprets the chemical properties of the sample received and appoints its composition			[SU1] Assessment of task fulfilment		
[K6_K01] Understands the need to improve professional and personal competencies; is conscious of own limitations and knows when to turn to experts, properly establishes priorities helping to accomplish tasks defined by oneself or others.	Understands the importance of different behaviour of separate ions and mixtures. Appreciates the need to extend the skills gained			[SK5] Assessment of ability to solve problems that arise in practice			

Subject contents	<p>During the laboratory classes a student examines over one hundred processes of chemical reaction. On the basis of literature he chooses proper reactions and while examining them, he identifies the presence of specific ions in solutions. Next, he examines the basic chemical and physical properties of the material received for further analysis.</p> <p>Later, the student plans to conduct proper experiments. Finally, he analyses their processes and on this basis, he identifies the received sample for analysis.</p> <p>1. Qualitative analysis of selected cations (Ag^+, Hg_2^{2+}, Pb^{2+}, Cu^{2+}, Hg^{2+}, Cd^{2+}, Bi^{3+}, Ni^{2+}, Co^{2+}, Fe^{3+}, Zn^{2+}, Mn^{2+}, Al^{3+}, Ca^{2+}, Ba^{2+}, K^+, NH_4^+, Na^+, Mg^{2+}).</p> <p>2. Qualitative analysis of selected anions. (Cl^-, Br^-, I^-, $[\text{Fe}(\text{CN})_6]^{4-}$, $[\text{Fe}(\text{CN})_6]^{3-}$, NO_2^-, CH_3COO^-, NO_3^-, MnO_4^-, SO_3^{2-}, CO_3^{2-}, $\text{C}_2\text{O}_4^{2-}$, BO_3^{3-}, $\text{C}_4\text{H}_4\text{O}_6^{2-}$, PO_4^{3-}, $\text{S}_2\text{O}_3^{2-}$, CrO_4^{2-}, SO_4^{2-})</p> <p>3. Qualitative analysis of selected inorganic compounds: acids, bases, salts and metals.</p>		
Prerequisites and co-requisites	None		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
Recommended reading	Basic literature	<p>1. J. Prejzner, Chemia Nieorganiczna - Laboratorium - skrypt, Wydawnictwo PG 2004</p> <p>2. J. Minczewski, Z. Marczenko, Chemia Analityczna Tom 1, PWN Warszawa 1997</p> <p>3. J. Sawicka i inni, Tablice Chemiczne, Wydawnictwo Podkowa Gdańsk 2002</p>	
	Supplementary literature	No recommendations	
	eResources addresses	Adresy na platformie eNauczanie:	
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		