



Subject card

Subject name and code	Inorganic chemistry laboratory, PG_00072475						
Field of study	Materials Engineering						
Date of commencement of studies	October 2026		Academic year of realisation of subject		2026/2027		
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 -> Faculties of Gdańsk University of Technology						
Name and surname of lecturer (lecturers)	Subject supervisor		prof. dr hab. inż. Jarosław Chojnacki				
	Teachers						
Lesson types	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		5.0		40.0	75
Subject objectives	Confrontation of knowlegde on reactivity of basic classess 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_K01] is ready to continuously expand his knowledge in materials engineering and related sciences, to critically evaluate this knowledge, and to recognise its importance in solving practical and cognitive problems; is aware of his own limitations and knows when to seek expert advice.		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		
	[K6_U01] is able to analyse and solve complex and non-standard scientific and technical problems in materials engineering based on his knowledge, using appropriate analytical, computational, numerical, simulation, or experimental methods		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 advanced knowledge of physics and chemistry, including facts, concepts, methods, and theories that enable the description and explanation of complex mechanical and physical phenomena as well as chemical processes; understands their key role in the advancement of civilization		Gain knowledge about chemical reactivity of substances in solutions: salts, acids, alkalia and properties of popular metals		[SW1] Assessment of factual knowledge		

Subject contents	Course content – laboratory 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. Later, the student plans to conduct proper experiments. Finally, he analyses their processes and on this basis, he identifies the received sample for analysis. 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+}). 2. Qualitative analysis of selected cations. (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-}) 3. Qualitative analysis of selected inorganic compounds: acids, bases, salts and metals.		
Prerequisites and co-requisites	None		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Sum of points for introductory tests and analyses	55.0%	100.0%
Recommended reading	Basic literature	1. J. Prejzner, Chemia Nieorganiczna - Laboratorium - skrypt, Wydawnictwo PG 2004 2. J. Minczewski, Z. Marczenko, Chemia Analityczna Tom 1, PWN Warszawa 1997 3. J. Sawicka i inni, Tablice Chemiczne , Wydawnictwo Podkowa Gdańsk 2002	
	Supplementary literature	No recommendations	
	eResources addresses		
Example issues/ example questions/ tasks being completed			
Practical activities within the subject	Not applicable		

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