



Subject card

Subject name and code	INORGANIC CHEMISTRY, PG_00053213						
Field of study	Chemistry						
Date of commencement of studies	October 2023	Academic year of realisation of subject			2024/2025		
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			5.0		
Learning profile	general academic profile	Assessment form			exam		
Conducting unit	Department of Inorganic Chemistry -> Faculty of Chemistry						
Name and surname of lecturer (lecturers)	Subject supervisor	prof. dr hab. inż. Anna Dołęga					
	Teachers						
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	45.0	0.0	0.0	75
	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	75	10.0		40.0	125	
Subject objectives	Basic knowledge of inorganic chemistry, properties of elements and their compounds - part 2, metals.						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	K6_W03	The student can interpret the properties of elements and their compounds at the molecular level. The student understands the relationship between the properties of chemical elements and their applications and occurrence in living organisms.			[SW1] Assessment of factual knowledge		
	K6_W02	The student understands the laws, concepts and chemical phenomena, uses terminology and chemical symbolism related to: construction of inorganic compounds, types of chemical reactions, ionic dissociation and neutralization and precipitation reactions, oxidation and reduction reactions; knows the physicochemical properties of the elements and their chemical compounds and their applications; understands chemical phenomena and processes, including: energy effects of changes, factors affecting the course of reactions chemical.			[SW1] Assessment of factual knowledge		

Subject contents	<p>LECTURE: Metals and their melts. Aluminum and heavier elements of boron group. The chemistry of s block elements. Lantanides and lantanide contraction. Actinides. The chemistry of d-block elements. Elements Sc...Zn versus Y...Cd and La...Hg. Mineral resources. Chemical basis of selected inorganic industrial processes - pure metals.</p> <p>LABORATORY: Every student has to do a two-semester course of classic qualitative analysis. During the running semester it consists of several practical exercises covering the qualitative analysis of selected anions, salts and simple inorganic substances.</p>		
Prerequisites and co-requisites	"Inorganic chemistry" 2nd semester tutorials and laboratory passed.		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Laboratory - 5 short tests and 5 detailed reports	45.0%	33.0%
	Written exam	60.0%	67.0%
Recommended reading	Basic literature	A. Bielański Chemia nieorganiczna, PWN recent editions; P.A. Cox Krótkie wykłady, chemia nieorganiczna, PWN 2003; F.A. Cotton, G. Wilkinson, P.L. Gaus Chemia nieorganiczna, podstawy, PWN 1995. University scripts: J. Prejzner: Inorganic Chemistry. Laboratory exercises. Issued by Gdansk University of Technology, Gdansk 2004.	
	Supplementary literature	N.N. Greenwood, A. Earnshaw Chemistry of the elements Pergamon, 2nd Ed. (2005); C.E. Housecroft, A.G. Sharpe Inorganic chemistry, Pearson, Prentice Hall; 1st (2001), 2nd (2005) or 3rd (2008) editions; A.F. Wells Strukturalna chemia nieorganiczna WNT, 1993. M. Łaniecki Basics Inorganic Qualitative Analysis, Issued by UAM, Poznań	
	eResources addresses	Adresy na platformie eNauczanie:	
Example issues/ example questions/ tasks being completed	<p>Describe the industrial method of soda ash synthesis.</p> <p>Write the reactions of lithium, sodium and potassium with the oxygen. What kind of ions are present in combustion products? Are these ions diamagnetic or paramagnetic? Answer justify using electron configurations and / or diagrams of molecular orbitals of the corresponding ions.</p> <p>For sodium, specify: a) electron configuration and the number of unpaired electrons in the ground state of Na atom; b) hydride type; answer the question whether the bonds in sodium hydride are ionic or covalent; write the reaction equation of sodium hydride with water; c) what is the main reaction product of the reaction of sodium with excess oxygen; write down the equation for this reaction and the reaction equation for the resulting sodium compound with carbon dioxide; write what the last reaction is used for; d) what is the chemical nature (alkaline, amphoteric, acidic, neutral) of sodium oxide; record at least two equations of reaction justifying the selected chemical character of this oxide.</p> <p>Among the given hydroxides, indicate amphoteric and write the reaction equations showing their amphotericity: aluminum hydroxide, sodium hydroxide, lead hydroxide (II), barium hydroxide.</p> <p>Provide the chemical composition of the following substances: a) quick lime; b) slaked lime; c) gypsum water; d) dolomite.</p>		
Work placement	Not applicable		