

## 。 GDAŃSK UNIVERSITY OF TECHNOLOGY

## Subject card

Subject name and code	Inorganic chemistry, PG_00060850								
Field of study	Chemical Technology								
Date of commencement of studies	October 2024		Academic year of realisation of subject			2025/2026			
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			6.0			
Learning profile	general academic profile		Assessment form			exam			
Conducting unit	Department of Inorga	Faculty of Cl	nemistry -> Wy	działy F	Politechniki Gdańskiej				
Name and surname	Subject supervisor		dr hab. inż. Ra	afał Grubba					
of lecturer (lecturers)	Teachers								
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Projec	t	Seminar	SUM	
	Number of study hours	15.0	0.0	60.0	0.0		0.0	75	
	E-learning hours inclu	ded: 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 75 hours		5.0		70.0		150		
Subject objectives	A knowledge of principal concepts in inorganic chemistry.								
Learning outcomes	Course out	come	Subj	ect outcome			Method of verif	fication	
	[K6_U11] individually plans and implements his/her own learning		Has the habit of continuous education and understands the need to improve professional, personal and social competences.			[SU2] Assessment of ability to analyse information			
	[K6_U12] applies the principles of health and safety at work		Is able to apply the principles of safe work when performing tasks in a chemical laboratory.			[SU4] Assessment of ability to use methods and tools			
	[K6_W02] has knowledge of inorganic, organic, physical and analytical chemistry useful for obtaining selected groups of compounds, determining their physical and chemical properties allowing for their quantitative and qualitative analysis, making measurements and determining the parameters of chemical reactions, phenomena and processes occurring in chemical technology		Has basic knowledge in the field of inorganic, organic, physical and analytical chemistry, including the preparation, physical and chemical properties of selected groups of compounds, their quantitative and qualitative analysis, as well as measurements and determination of reaction parameters, chemical phenomena and processes occurring in chemical technology.			[SW1] Assessment of factual knowledge			
	[K6_U03] is able to apply knowledge of inorganic, organic, physical and analytical chemistry and identify appropriate sources of information to design and synthesize simple chemical compounds, carry out basic physicochemical and analytical measurements		He can design the synthesis of simple chemical compounds based on his knowledge of inorganic, organic, physical and analytical chemistry. Is able to carry out simple physicochemical measurements. Is able to plan and implement his own learning.			[SU3] Assessment of ability to use knowledge gained from the subject			

Subject contents	Lecture:- Properties, application and technological significance of selected elements of the main groups of the periodic table:group 14, group 15, group 16, group 17, group 18- Metals: chemical and physical properties of metals, metallic bond, galvanic series, characteristics of metals d and f blocks, basics of chemistry of complex compounds- Selected inorganic technology processesLaboratory:Execution by each student of 10 exercises in the field of qualitative analysis (selected cations, anions and salts composed of these ions). The analysis is carried out mainly using chemical methods. As part of the exercise, students learn the physical and chemical properties of inorganic compounds, methods of their separation and identification. They also master the experimental foundations of inorganic chemistry						
Prerequisites and co-requisites	It is required to pass the classes and lectures in Inorganic Chemistry, semester II.						
Assessment methods	Subject passing criteria	Passing threshold	Percentage of the final grade				
and criteria	Written exam	60.0%	60.0%				
	Written tests and reports on laboratory exercises - ten times during semester	60.0%	40.0%				
Recommended reading	Basic literature	<ul> <li>L. Jones, P. Atkins "Chemia ogólna"; PWN, 2004, or more recent issues (Polish translation from English "General Chemistry" original)</li> <li>A. Bielański Podstawy chemii nieorganicznej (PWN) recent issues;</li> <li>P.A. Cox Krótkie wykłady, chemia nieorganiczna, PWN, 2003; (Polish translation from English "Instant Notes in Inorganic Chemistry" original)</li> </ul>					
	Supplementary literature	Materials for the course are ava	ailable on the enuczanie platform				
	eResources addresses						
Example issues/ example questions/ tasks being completed	<ol> <li>Ammonia is a technically important compound. Give his Lewis formula. Discuss the conditions of its industrial production in detail. Justify the conditions of the reaction using the rule of contrariness.</li> <li>Sulfuric acid (VI) is an important product of the chemical industry. Describe his method of industrial production. Give Lewis formulas and molecular shapes for HSO3, SO2, SO3.</li> <li>What is the reaction of the aqueous solution of: a) beryllium nitrate (V), b) rubidium orthoarsenate (V), c) thallium nitrate (I)? Give the reaction responsible for the pH of these solutions or state that salt does not react with water.</li> </ol>						
Work placement	Not applicable						

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