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 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	6.0
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	dr hab. inż. Rafał Grubba
	Teachers	dr hab. inż. Rafał Grubba

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	15.0	0.0	60.0	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	5.0	70.0	150

Subject objectives: A knowledge of principal concepts in inorganic chemistry.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[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
[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_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_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

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 and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Written tests and reports on laboratory exercises - ten times during semester	60.0%	40.0%
Written exam	60.0%	60.0%

Recommended reading

Basic literature	• L. Jones, P. Atkins "Chemia ogólna"; PWN, 2004, or more recent issues (Polish translation from English "General Chemistry" original) • A. Bielański Podstawy chemii nieorganicznej (PWN) recent issues; • P.A. Cox Krótkie wykłady, chemia nieorganiczna, PWN, 2003; (Polish translation from English "Instant Notes in Inorganic Chemistry" original)
Supplementary literature	• Materials for the course are available on the enuczanie platform
eResources addresses	Adresy na platformie eNauczanie:

Example issues/ example questions/ tasks being completed

1. 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.
2. 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.
3. 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.

Work placement

Not applicable