



Subject card

Subject name and code	General and inorganic chemistry, PG_00063332						
Field of study	Nanotechnology						
Date of commencement of studies	October 2024	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	1	Language of instruction			Polish		
Semester of study	1	ECTS credits			3.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Department of Solid State Physics -> Faculty of Applied Physics and Mathematics						
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. Katarzyna Kazimierczuk					
	Teachers	dr hab. Katarzyna Kazimierczuk dr hab. inż. Łukasz Ponikiewski					
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	15.0	0.0	0.0	0.0	45
	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	45	5.0		25.0	75	
Subject objectives	The aim of this course is the repetition of basic chemical knowledge.						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	[K6_U01] can learn independently, obtain information from literature, databases and other properly selected sources	- student presents wider knowledge in chosen fields of chemistry - student uses knowledge in solving problem, not only in the chemistry field			[SU3] Assessment of ability to use knowledge gained from the subject [SU4] Assessment of ability to use methods and tools		
	[K6_W05] has knowledge of inorganic and organic chemistry, physical chemistry and chemical thermodynamics.	- can give examples of basic organic and inorganic compounds, describe their properties and give typical reactions. - do basic calculations			[SW1] Assessment of factual knowledge		
	[K6_W01] has knowledge of materials science and understands its key role in the progress of civilization	- can give examples of chemical substances used in every-day life - can give examples of polymers produced in a large scale			[SW1] Assessment of factual knowledge		
Subject contents	1. Chemical nomenclature inorganic compounds 2. Basic Chemical Concepts and Laws 3. Types of chemical reaction (including oxidation and reduction) 4. Calculations Stoichiometry of Chemical Formulas and Chemical Equations 5. Calculation Concentrations of solutions (Mol, Percent, etc.) 6. Molecular form orbital, Lewis pattern, hybridization, 7. Chemical bonds and intermolecular interactions 8. States of concentration 9. Hydrogen, oxygen, water - construction, physical and chemical properties 10. Theories of acids and bases						

Prerequisites and co-requisites	Basic knowledge of chemistry, physics and mathematics is required.		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Lecture - exams	50.0%	60.0%
	Exercise two tests	50.0%	40.0%
Recommended reading	Basic literature	Any high school chemistry handbook. J. D. Lee - Związła chemia nieorganiczna L. Jones, P. Atkins- Chemistry: Molecules, Matter, and Change	
	Supplementary literature	A. Bielański Chemia ogólna i nieorganiczna McMurry - Organic chemistry.	
	eResources addresses	Adresy na platformie eNauczenie: 2024/25 Chemia ogólna i nieorganiczna dla kierunku Nanotechnologia semestr I - Moodle ID: 40126 https://enauczenie.pg.edu.pl/moodle/course/view.php?id=40126	
Example issues/ example questions/ tasks being completed	<p>1.Polarized covalent bonds. Give an example of compound.</p> <p>2.Calculate the % and molar concentration of potassium hydroxide solution, obtained by introducing of 39 g of potassium into 500 g of water. The solution density is 1.09 g/cm³.</p> <p>3.Write down the reactions:</p> <p>a) neutralizing of magnesium hydroxide</p> <p>b) synthesis of sulfuric(VI) acid</p>		
Work placement	Not applicable		

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