GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	, PG_00058869		
Field of study	Nanotechnology		
Date of commencement of studies	October 2023	Academic year of realisation of subject	2023/2024
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	6.0
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 inż. Anna Ordyszewska dr hab. Katarzyna Kazimierczuk	

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	15.0	90.0	150

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	- student presents wider knowledge in chosen fields of chemistry - student uses knowledge in solving problem, not only in the chemistry field	[SU4] Assessment of ability to use methods and tools [SU3] Assessment of ability to use knowledge gained from the subject
K6_W01	- 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
K6_W05	- can give examples of basic organic and inorganic compounds, describe their properties and give typical reactions. - do basic calculations	[SW1] Assessment of factual knowledge

Subject contents

1. Chemical nomenclature inorganic compounds
2. Basic Chemical Concepts and Laws3. 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

<table>
<tr><td>Prerequisites and co-requisites</td><td colspan="3">Basic knowledge of chemistry, physics and mathematics is required.</td></tr>
<tr><td>Assessment methods and criteria</td><td colspan="3"><table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td>Lecture - exams</td><td>50.0%</td><td>60.0%</td></tr>
<tr><td>Exercise two tests</td><td>50.0%</td><td>40.0%</td></tr>
</table></td></tr>
<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td colspan="2">Any high school chemistry handbook.

J. D. Lee - Zwięzła chemia nieorganiczna

L. Jones, P. Atkins- Chemistry: Molecules, Matter, and Change</td></tr>
<tr><td>Supplementary literature</td><td colspan="2">A. Bielański Chemia ogólna i nieorganiczna

McMurry - Organic chemistry.</td></tr>
<tr><td>eResources addresses</td><td colspan="2">Adresy na platformie eNauczanie:
2023/24 Chemia ogólna i nieorganiczna dla kierunku Nanotechnologia semestr I - Moodle ID: 29020
https://enauczanie.pg.edu.pl/moodle/course/view.php?id=29020</td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td colspan="3">1.Polarized covalent bonds. Give an example of compound.

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/cm^3.

3.Write down the reactions:

a) neutralizing of magnesium hydroxide

b) synthesis of sulfuric(VI) acid</td></tr>
<tr><td>Work placement</td><td colspan="3">Not applicable</td></tr>
</table>