GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Chemistry, PG_00041989		
Field of study	Power Engineering, Power Engineering		
Date of commencement of studies	October 2022	Academic year of realisation of subject	2022/2023
Education level	first-cycle studies	Subject group	Obligatory subject group in the field of study
Mode of study	Full-time studies	Mode of delivery	at the university
Year of study	1	Language of instruction	English
Semester of study	1	ECTS credits	3.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Department of Chemistry and Technology of Functional Materials -> Faculty of Chemistry		
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Ewa Wagner-Wysiecka	
	Teachers	dr hab. inż. Ewa Wagner-Wysiecka dr inż. Konrad Trzciński	

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	30.0	0.0	15.0	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	7.0	23.0	75

Subject objectives

The aim of the subject is to learn students the concepts of chemistry and the chemical basis of the processes useful in learning problems of widely understood energetics.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_K01] is aware of the need for training and self-improvement in the profession of energy and the possibility of further education; can think and act in a creative and entrepreneurial manner; can define priorities for the implementation of an individual or group task	Student realizes that the use of knowledge related to chemical transformations is important in improving professional qualifications.	[SK2] Assessment of progress of work [SK3] Assessment of ability to organize work
[K6_U10] can use correctly selected methods and measuring devices for determination of basic parameters during the water treatment process and wastewater treatment control; can perform basic laboratory tests leading to the assessment of water quality, pollutant load in wastewater		
[K6_W03] knows the basics of automation and automatic regulation, knows the principles of the selection of electrical devices, drive systems and their control		

Subject contents

Lecture:The structure of matter. Periodic table, chemical elements. Chemical bonds. Types of the chemical compounds. Chemical reactions. Elements of the thermodynamics and chemical kinetics. Gases, liquids and solids - properties, structure. Solutions. Corrosion. Combustion processes. Laboratory: Reaction kinetics. Qualitative analysis of cation and anions. Water hardness. Conductivity of solutions and electrolysis. Corrosion. Electrochemical series and galvanic cells.

Prerequisites and co-requisites

<table>
<tr><td>Assessment methods and criteria</td><td colspan="2"><table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td>Written test on the ground of the lecture</td><td>50.0%</td><td>50.0%</td></tr>
<tr><td>Six tests refering to the laboratory excercises</td><td>50.0%</td><td>50.0%</td></tr>
</table></td></tr>
<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td>1. Bielański A.: "Chemia ogólna i nieorganiczna", PWN 2002 2. Cotton F.A., Wilkinson G., Gaus P.L.: "Chemia nieorganiczna. Podstawy." , PWN 2002 3.Sienko M.J., Plane R.A.: "Chemia. Podstawy i zastosowania", WNT 2002 4. Pajdowski L.:" Chemia ogólna", PWN 1999 5.McMurray J.: "Chemia organiczna" PWN 2005 6. Atkins P.W.:" Podstawy chemii fizycznej" PWN 1999 7. Bortel E., Koneczny H.:"Zarys technologii chemicznej", PWN 1992 8. red. Luboch E., Bocheńska M., Biernat J.F."Chemia ogólna. Ćwiczenia laboratoryjne" Wyd. PG 2003 9. Brown T. E., Eugene LeMay H., Bursten B. E., Murphy C., Woodward P.: Chemistry: The Central Science, 12th Ed. 2011, 10. Pauling L.: General Chemistry, 3rd Ed. 11. S. S. Zumdahl , S. A. Zumdahl: Chemistry 7th Ed.003</td></tr>
<tr><td>Supplementary literature</td><td>1. Kołos W., Sadlej J.:"Atom i cząsteczka", WNT 2007 2. Atkins P.W.:" Przewodnik po chemii fizycznej", PWN 1997 3. Mastalerz P.:"Chemia organiczna", Wyd. Chemiczne 2002 4. Bogoczek R., Kociołek-Balawejder E.:"Technologia chemiczna organiczna. Surowce i półprodukty." Wyd. AE Wrocław 1992 5. 12. Jess A., Wasserscheid P.: Chemical Technology: An Integral Textbook, 2013</td></tr>
<tr><td>eResources addresses</td><td>Adresy na platformie eNauczanie:
Chemistry - Energy Technologies 2022/2023 - Moodle ID: 25478
https://enauczanie.pg.edu.pl/moodle/course/view.php?id=25478</td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td colspan="2">-</td></tr>
<tr><td>Work placement</td><td colspan="2">Not applicable</td></tr>
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