



Subject card

Subject name and code	Chemistry, PG_00049097						
Field of study	Materials Engineering, Materials Engineering, Materials Engineering						
Date of commencement of studies	October 2021		Academic year of realisation of subject		2021/2022		
Education level	first-cycle studies		Subject group		Obligatory subject group in the field of study		
Mode of study	Full-time studies		Mode of delivery		blended-learning		
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 Inorganic Chemistry -> Faculty of Chemistry						
Name and surname of lecturer (lecturers)	Subject supervisor		prof. dr hab. inż. Jarosław Chojnacki				
	Teachers		prof. dr hab. inż. Jarosław Chojnacki dr inż. Damian Rosiak				
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: 28.0						
	Adresy na platformie eNauczanie: Chemia Ogólna / Chemia I - Moodle ID: 7765 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=7765						
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		10.0		95.0	150
Subject objectives	Understanding of principles of general and inorganic chemistry						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	K6_K01		appreciates the need of permanent learning and self-training		[SK5] Assessment of ability to solve problems that arise in practice		
	K6_U03		analyses chemical problems in qualitative way and then in quantitative way		[SU2] Assessment of ability to analyse information		
	K6_W02		Having completed the programme, a student is familiar with chemical nomenclature and he understands the basic laws and concepts of contemporary chemistry. In addition, he is able to associate the properties of each group of chemical compounds with its structure and bonding. The student is capable of estimating the influence of the structure on the physical and the chemical properties of materials. Moreover, he is able to solve basic assignments and problems in stoichiometry and chemistry of solutions in order to apply them in analytical chemistry and chemical technology.		[SW1] Assessment of factual knowledge		

Subject contents	1. Structure of matter, the standard model. 2. Electronic structure of atom. 3. Classification of Elements. 4. Chemical bonds. 5. Classification of chemical compounds. 6. Chemical reactions. 7. Chemical equilibria in water solutions. 8. Basics of electrochemistry. 9. Writing chemical reactions. 10. Solutions Stoichiometry. 11. Stoichiometric Calculations		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Written tests for the classroom part	53.0%	33.0%
	Written exam, lecture	55.0%	67.0%
Recommended reading	Basic literature	1. L. Jones, P. Atkins, Chemia Ogólna. Częsteczki, materia, reakcje, Wydawnictwo Naukowe PWN Warszawa 2014. 2. A. Bielański, Podstawy Chemii Nieorganicznej, PWN Warszawa 2006 3. Praca zbiorowa, Podstawy Obliczeń Chemicznych, Skrypt w wersji elektronicznej: https://chem.pg.edu.pl/kchn/im-chemia-i	
	Supplementary literature	1. M. J. Sienko, R. A. Plane, Chemia, Podstawy i Zastosowania, WNT 2002 2. Z. Bądkowska, E. Koloński, M. Wojnowska, Obliczenia z Chemii Nieorganicznej, Wydawnictwo PG 1996 - skrypt.	
	eResources addresses	Chemia Ogólna / Chemia I - Moodle ID: 7765 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=7765	
Example issues/ example questions/ tasks being completed	Balance the reaction: $\text{MnO}_4^- + \text{SO}_3^{2-} + \dots = \text{Mn}^{2+} + \text{SO}_4^{2-} + \text{H}_2\text{O}$ Draw Lewis structures for molecules of SO_2 i HNO_3 . Write half-equations (for oxidation and reduction) for corrosion of iron in the presence of water and oxygen.		
Work placement	Not applicable		