



## Subject card

Subject name and code	Inorganic Chemistry, PG_00048909						
Field of study	Chemistry in Construction Engineering						
Date of commencement of studies	October 2020	Academic year of realisation of subject			2020/2021		
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			7.0		
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	prof. dr hab. inż. Jarosław Chojnacki					
	Teachers	dr inż. Aleksandra Ziółkowska prof. dr hab. inż. Jarosław Chojnacki					
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	15.0	30.0	0.0	0.0	75
	E-learning hours included: 0.0						
	Adresy na platformie eNauczanie: Chemia Nieorganiczna - Moodle ID: 9677 <a href="https://enauczanie.pg.edu.pl/moodle/course/view.php?id=9677">https://enauczanie.pg.edu.pl/moodle/course/view.php?id=9677</a>						
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	20.0	80.0	175		
Subject objectives	Understanding of principles of inorganic chemistry						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	K6_W03	Has a well-established knowledge of inorganic chemistry, including the knowledge necessary to describe and understand the chemical phenomena and processes occurring in construction materials and to measure and determine the parameters of these processes			[SW1] Assessment of factual knowledge		
	K6_U07	Can make use of the knowledge of reaction models to explanation of actual chemical processes and phenomena			[SU2] Assessment of ability to analyse information		
	K6_K01	can identify given inorganic substance based on trial chemical reactions and describe its chemical properties (acid, base, salt, oxidizer, reducer)			[SK3] Assessment of ability to organize work [SK5] Assessment of ability to solve problems that arise in practice		

Subject contents	<p>LECTURE</p> <p>Scope and role of inorganic chemistry. Origin and distribution of the elements. Basic terms of crystallography. Acids, bases, salts, complex compounds - properties. Complex formation equilibria. Structure, properties and nomenclature of coordination compounds. Theoretical basis of qualitative analysis. Basis of structural chemistry of solids. Systematic review of properties, occurrence and chemical reactivity of all of the elements based on the periodic table. Methods of obtaining and applications of the elements and their compounds focusing on materials used in construction industry.</p> <p>TUTORIALS</p> <p>Ionic equilibrium - degree of ionisation (protolysis), Ostwald rule of dissolution, calculation of pH. Equilibria in solutions of complex compounds, solubility of deposits in aqueous solutions, solubility product.</p> <p>LABORATORY</p> <p>Laboratory basic equipment and simple operations (precipitation, filtration etc.). Qualitative analysis of cations and anions focusing on substances used in construction industry.</p>														
Prerequisites and co-requisites															
Assessment methods and criteria	<table border="1"> <thead> <tr> <th data-bbox="456 808 794 837">Subject passing criteria</th> <th data-bbox="794 808 1142 837">Passing threshold</th> <th data-bbox="1142 808 1479 837">Percentage of the final grade</th> </tr> </thead> <tbody> <tr> <td data-bbox="456 837 794 866">Laboratory: completion of tasks</td> <td data-bbox="794 837 1142 866">60.0%</td> <td data-bbox="1142 837 1479 866">25.0%</td> </tr> <tr> <td data-bbox="456 866 794 896">Seminars: two written tests</td> <td data-bbox="794 866 1142 896">60.0%</td> <td data-bbox="1142 866 1479 896">25.0%</td> </tr> <tr> <td data-bbox="456 896 794 925">Exam</td> <td data-bbox="794 896 1142 925">60.0%</td> <td data-bbox="1142 896 1479 925">50.0%</td> </tr> </tbody> </table>			Subject passing criteria	Passing threshold	Percentage of the final grade	Laboratory: completion of tasks	60.0%	25.0%	Seminars: two written tests	60.0%	25.0%	Exam	60.0%	50.0%
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Recommended reading	<p>Basic literature</p>	<p>Bielański A. , Podstawy Chemii Nieorganicznej, Wydawnictwo Naukowe PWN 2010, jednotomowa lub tom I i II.</p> <p>Cox P.A., Krotkie wykłady. Chemia Nieorganiczna, PWN, Warszawa, 2003.</p> <p>Ćwiczenia rachunkowe - skrypt <a href="#">on-line</a>. Praca zbiorowa, Katedra Chemii Nieorganicznej PG</p> <p>J. Prejzner: Chemia nieorganiczna. Laboratorium, Wydawnictwo PG, 2004</p> <p>L. Jones, P. Atkins, Chemia ogólna. Cząsteczki, materia, reakcje, Wydawnictwo Naukowe PWN, Warszawa 2009, tom I i II.</p>													
	<p>Supplementary literature</p>	<p>L. Kolditz (red.), Chemia Nieorganiczna cz. I i II, Wydawnictwo Naukowe PWN, Warszawa 1994</p> <p>F.A. Cotton, G. Wilkinson, P.L. Gaus, Chemia nieorganiczna. Podstawy. Wydawnictwo Naukowe PWN, Warszawa 1995</p> <p>J. Minczewski, Z. Marczenko, Chemia analityczna T1. Podstawy teoretyczne i analiza jakościowa, Wydawnictwo Naukowe PWN, 2010.</p>													
	<p>eResources addresses</p>	<p>Chemia Nieorganiczna - Moodle ID: 9677  <a href="https://enauczanie.pg.edu.pl/moodle/course/view.php?id=9677">https://enauczanie.pg.edu.pl/moodle/course/view.php?id=9677</a></p>													
Example issues/ example questions/ tasks being completed	<p>Characterize elements of the 14-th group of the periodic table of the elements</p> <p>Identify ionic composition of the provided salt sample.</p> <p>Determine empirical and molecular formula for a hydrocarbon, containing 81,8% of C, if its density at STP is 1,96 g/L.</p>														
Work placement	<p>Not applicable</p>														