



Subject card

Subject name and code	Inorganic Chemistry, PG_00048909						
Field of study	Chemistry in Construction 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 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						
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						
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="799 808 1137 837">Passing threshold</th> <th data-bbox="1142 808 1481 837">Percentage of the final grade</th> </tr> </thead> <tbody> <tr> <td data-bbox="456 844 794 871">Exam</td> <td data-bbox="799 844 1137 871">60.0%</td> <td data-bbox="1142 844 1481 871">50.0%</td> </tr> <tr> <td data-bbox="456 878 794 904">Seminars: two written tests</td> <td data-bbox="799 878 1137 904">60.0%</td> <td data-bbox="1142 878 1481 904">25.0%</td> </tr> <tr> <td data-bbox="456 911 794 938">Laboratory: completion of tasks</td> <td data-bbox="799 911 1137 938">60.0%</td> <td data-bbox="1142 911 1481 938">25.0%</td> </tr> </tbody> </table>			Subject passing criteria	Passing threshold	Percentage of the final grade	Exam	60.0%	50.0%	Seminars: two written tests	60.0%	25.0%	Laboratory: completion of tasks	60.0%	25.0%
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Recommended reading	<p>Basic literature</p> <p>Supplementary literature</p> <p>eResources addresses</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 on-line. 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>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>Adresy na platformie eNauczanie:</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	Not applicable														