



Subject card

Subject name and code	Energetic and Chemical Raw Materials, PG_00035961						
Field of study	Chemical Technology						
Date of commencement of studies	October 2022	Academic year of realisation of subject			2023/2024		
Education level	first-cycle studies	Subject group			Optional subject group 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	2	Language of instruction			Polish		
Semester of study	4	ECTS credits			4.0		
Learning profile	general academic profile	Assessment form			exam		
Conducting unit	Department of Process Engineering and Chemical Technology -> Faculty of Chemistry						
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Marek Lieder					
	Teachers	dr hab. inż. Marek Lieder dr inż. Aleksandra Małachowska					
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	5.0		50.0	100	
Subject objectives	the purpose of the subject is knowledge of mineral resources and their classification						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	K6_U06	student explains the usefulness of various organic raw materials to receive products, can choose raw materials and synthesis routes, analyzes and evaluates the quality of materials obtained from the processing of coal, oil and gas, makes a critical analysis of the functioning of existing technical solutions and evaluates these solutions, makes a preliminary economic assessment of the proposed solutions and engineering activities			[SU3] Assessment of ability to use knowledge gained from the subject		
Subject contents	Basic properties of minerals: hardness, isomorphism, enantiomotropic and monotropic polymorphism, diadochies, solid solutions - their industrial significance and use. Chemical and physical ventilation of minerals. Metamorphic transformation of minerals.						
	Raw materials of barium, boron, bromine and fluorine: their specific properties, industrial importance, the most important elements of processing, occurrence in the country and in the world.						
	Fossil energy resources - global and national resources. Hard coal and lignite - properties, occurrence in the country and in the world. Hard coal as a chemical raw material, processing and burning of coal.						
Prerequisites and co-requisites	none						
Assessment methods and criteria	Subject passing criteria	Passing threshold		Percentage of the final grade			
		60.0%		70.0%			
		60.0%		30.0%			

Recommended reading	Basic literature	<ol style="list-style-type: none"> 1. Praca zbiorowa: Bilans gospodarki surowcami mineralnymi Polski i świata 2001-2005. Wyd. PAN, Instytut Gospodarki Surowcami Mineralnymi i Energią, Kraków, 2007. 2. Magda. R: Międzynarodowe rynki metali i surowców mineralnych. Wyd. AGH, Kraków, 2006. 3. Manecki A. Encyklopedia minerałów. Wyd. AGH, Kraków, 2004. 4. Drzymała J., Podstawy mineralurgii, Oficyna Wydawnicza Politechniki Wrocławskiej, Wrocław, 2001.
	Supplementary literature	none
	eResources addresses	<p>Adresy na platformie eNauczanie:</p> <p>Surowce Energetyczne i Chemiczne - Wykład - 2023/2024 - Moodle ID: 25917 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=25917</p> <p>Surowce Energetyczne i Chemiczne - lab - Moodle ID: 38713 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=38713</p>
Example issues/ example questions/ tasks being completed	<p>Biogas - properties, formation, production.</p> <p>Biogas from waste, on landfills for municipal waste.</p>	
Work placement	Not applicable	

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