



Subject card

Subject name and code	Inorganic technology, PG_00035977						
Field of study	Chemical Technology						
Date of commencement of studies	October 2022	Academic year of realisation of subject			2024/2025		
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	3	Language of instruction			Polish		
Semester of study	6	ECTS credits			3.0		
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						
	Teachers						
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	0.0	0.0	15.0	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		25.0	75
Subject objectives	Student learns practical aspects of technological processes in chemical industry. Student can apply theoretical knowledge to technology.						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	K6_W05						
	K6_U03						
	K6_U11						
	K6_U13						

Subject contents	<p>1. Technology of soda ash</p> <p>2. Production of sulphuric acid</p> <p>3. Technology of phosphorus, inorganic compounds of phosphorus and phosphates.</p> <p>4. Technology of inorganic compounds of nitrogen - synthesis of ammonia, nitric acid and urea.</p> <p>5. Technology of combustion and energy conversion</p> <p>6. Technology of chlorine production</p> <p>7. Technology of water</p> <p>8. Metallurgical processes</p> <p>9. Technology of conversion coatings on metals.</p>		
Prerequisites and co-requisites	Basics of Chemical technology. Introductory level.		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	written exam	60.0%	60.0%
	midterm colloquiums	60.0%	40.0%
Recommended reading	Basic literature	<p>1. Bortel E., Koneczny H. „Zarys technologii chemicznej” Wydawnictwo Naukowe PWN Warszawa 1992 2. Kępiński J. „Technologia chemiczna nieorganiczna” Państwowe Wydawnictwo Naukowe Warszawa 1984 3. Schmidt-Szałowski K., Sentek J. „Podstawy technologii chemicznej. Organizacja procesów produkcyjnych” Oficyna Wydawnicza Politechniki Warszawskiej Warszawa 2001 4. Schmidt-Szałowski K., Sentek J., Raabe J., Bobryk E. „Podstawy technologii chemicznej. Procesy w przemyśle nieorganicznym” Oficyna Wydawnicza Politechniki Warszawskiej Warszawa 2004 5. Praca zbiorowa pod redakcją K. Schmidt-Szałowskiego „Podstawy technologii chemicznej. Bilanse procesów technologicznych” Oficyna Wydawnicza Politechniki Warszawskiej Warszawa 1997 6. Kowalski W., Nowe kierunki w technologii kwasu siarkowego, WNT Warszawa 1980</p>	
	Supplementary literature	No requirements	
	eResources addresses		

<p>Example issues/ example questions/ tasks being completed</p>	<ol style="list-style-type: none"> 1. Explain why coke is considered to be a 'dirty' (unecological) fuel , but methane is not. 2. Inside an instalation for bicarbonate production circulate three gases. What's their role, and how they enter the system? 3. We need nitrogen and hydrogen (synthetic gas) for ammonia production. How is hydrogen produced? Are there any chemical reactions involved during hydrogen mixing with nitrogen? 4. Is there any alkalization of the electrolyte during chlorine production by mercury electrolysis? Explain 5. Both technologies for phosphoric acid production employ recirculation of the acid. Why? 6. Nitric acid production: <ol style="list-style-type: none"> a) write three reaction of ammonia combustion b) why do we use the 11% concentration of ammonia with the air c) what a catalyst is employed? Are there any support for the catalyst? e) Which instalation is better (more efficient): the one operating at low or high pressure? Explain.
<p>Work placement</p>	<p>Not applicable</p>