GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Inorganic Technology, PG_00049400		
Field of study	Green Technologies		
Date of commencement of studies	October 2021	Academic year of realisation of subject	2023/2024
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	2.0
Learning profile	general academic profile	Assessment form	assessment
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		

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	0.0	30
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	30	2.0	18.0	50

Subject objectives

Acquires technological knowledge of the production of inorganic compounds. Students can combine theoretical knowledge with technological applications.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_W02] has a basic knowledge of chemistry including general chemistry, inorganic, organic, physical, analytical, including the knowledge necessary to describe and understand the phenomena and chemical processes occurring in the environment; measurement and the determination of the parameters of these processes.	Student acquires knowledge in the fields of inorganic technology, especially for the production of inorganic acids like phosphoric, sulphuric, nitric and also fertilizers, ammonia, sodium hydroxide, chlorine and hydrogen.	[SW2] Assessment of knowledge contained in presentation [SW1] Assessment of factual knowledge
[K6_U04] capable of formulating and solving design tasks in the field of environmental technology to recognize their non-technical aspects, including environmental, economic and legal. Is capable of applying the principles of occupational health and safety. Is able to make initial assessment of engineering solutions and actions	Student knows and understands physico-chemical basis of inorganic technologies. Understands the importance of fundamental operation and process units. Student is competent at economic aspects of projecting new technical and technological solutions.	[SU3] Assessment of ability to use knowledge gained from the subject [SU2] Assessment of ability to analyse information

Subject contents	1. Soda ash production 2. Technology of sulfuric acid production 3. Technology of fosforous and its inorganic compounds including fertilizers 4. Technology of inorgranic nitrogen compounds: nitric acid, ammonia, urea, ammonia nitrate 5. Technology of chlorine 6. Technology of fuels combustion 7. Technology of water 8 Metallurgical technologies 9. Hydrogen economy
Prerequisites and co-requisites	

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
examination	60.0%	60.0%
test	60.0%	40.0%

Recommended reading

Basic literature	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 redakcja 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
Supplementary literature	not applicable
eResources addresses	Adresy na platformie eNauczanie: Technologia Nieorganiczna - Wykład - 2023/2024 - Moodle ID: 25918 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=25918

Example issues/ example questions/ tasks being completed	1. Hydrogen and nitrogen are necessary for ammonia production. Where are these gases acquired? 2. Is it possible that during chlorine production by the mercury technology an electrolyte gets alkalized? 3. Compare the recirculation processes in both technologies of posphorous production
Work placement	Not applicable