GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Selected topics of Environmental Protection in Industry , PG_00035496		
Field of study	Engineering and Technologies of Energy Carriers		
Date of commencement of studies	February 2023	Academic year of realisation of subject	2023/2024
Education level	second-cycle studies	Subject group	Optional subject group Humanistic-social subject group
Mode of study	Full-time studies	Mode of delivery	at the university
Year of study	1	Language of instruction	Polish
Semester of study	2	ECTS credits	4.0
Learning profile	practical profile	Assessment form	assessment
Conducting unit	Department of Chemical and Process Engineering -> Faculty of Chemistry		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Patrycja Makoś-Chełstowska	
	Teachers	dr inż. Patrycja Makoś-Chełstowska dr inż. Edyta Słupek dr inż. Piotr Rybarczyk dr inż. Izabela Wysocka dr inż. Natalia Łukasik 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	30.0	0.0	0.0	60
	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	60	4.0	36.0	100

Subject objectives	Presentation of issuesof environmental protection in relation to industry - in the field of applied technologies for environmental protection, monitoring of pollutant emissions as well as related to environmental impact assessment and related legal aspects.

Learning outcomes

Course outcome	Subject outcome	Method of verification
K7_W11	knows and understands the basic processes occurring in apparatus for technological processes and auxiliary devices, knows and understands in an in-depth degree - selected processes and unit operations and their methods and theories describing complex relationships between them, providing advanced general knowledge in the field of chemistry, mathematics, physics , engineering and chemical technology that form theoretical foundations, structured and theoretically founded knowledge covering key issues and selected issues in the field of advanced detailed knowledge concerning the production and processing of energy carriers, knows and understands the main development trends in this area	[SW1] Assessment of factual knowledge [SW3] Assessment of knowledge contained in written work and projects
K7_U08	is able to design - in accordance with a given specification, taking into account non-technical aspects - a complex technological process related to engineering and energy media technologies, and implement this project, at least in part, using appropriate methods, techniques and tools, adapting existing or developing new ones for this purpose methods, techniques and tools	[SU1] Assessment of task fulfilment [SU2] Assessment of ability to analyse information [SU3] Assessment of ability to use knowledge gained from the subject [SU4] Assessment of ability to use methods and tools
K7_U07	can make a critical analysis of existing technical solutions and propose their improvements.	[SU2] Assessment of ability to analyse information [SU3] Assessment of ability to use knowledge gained from the subject [SU4] Assessment of ability to use methods and tools
K7_U01	is able to plan and carry out experiments, interpret obtained results and draw conclusions, is also able to formulate and test hypotheses related to engineering problems and simple research problems in the field of chemistry, physics and engineering and chemical technology	[SU1] Assessment of task fulfilment [SU2] Assessment of ability to analyse information [SU3] Assessment of ability to use knowledge gained from the subject [SU4] Assessment of ability to use methods and tools

Subject contents

1. Types of impact on environment and sources of environmental pollution in the industry
2. Physio-chemical basics of phenomena and technologies used for treatment of waste gases
3. Physio-chemical basics of phenomena and technologies used for treatment of water and wastewater
4. Remediation of polluted soils
5. Waste disposal and management
6. Review of legal acts related to environmental protection
7. Environmental management according to ISO 14001
8. Basics of environmental impact assessment
9. Production-integrated environmental protection in the chemical industry
10. A review of environmental aspects for selected industrial companies

Prerequisites and co-requisites

Knowledge about general, organic, inorganic, physical and analytical chemistry as well as physics.

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Rating from the laboratory	60.0%	40.0%
Written test	60.0%	60.0%

Recommended reading	Basic literature	C. Christ (ed.), Production-integrated environmental protection and waste management in the chemical industry, WILEY-VCH, 1999 J.A. Tomaszek, P. Koszelnik, Progress in environmental engineering, CRC press, 2015 Standard ISO 14001 Legal acts related to environmental protection
	Supplementary literature	Scientific publications related to the subject. Reports of environmental impact assesment. Environmental reports.
	eResources addresses	Adresy na platformie eNauczanie: 2023/24 (W) Wybrane zagadnienia ochrony środowiska w przemyśle - Moodle ID: 34779 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=34779 2023/24 (W) Wybrane zagadnienia ochrony środowiska w przemyśle - Moodle ID: 34779 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=34779
Example issues/ example questions/ tasks being completed		
Work placement	Not applicable	