GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Introdution to environmental science , PG_00048776		
Field of study	Green Technologies		
Date of commencement of studies	October 2020	Academic year of realisation of subject	2020/2021
Education level	first-cycle studies	Subject group	Obligatory subject group in the field of study 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	1	ECTS credits	2.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Department of Analytical Chemistry -> Faculty of Chemistry		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Paweł Kubica	
	Teachers	dr inż. Paweł Kubica dr hab. inż. Marek Tobiszewski	

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

Adresy na platformie eNauczanie:

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	5.0	15.0	50

Subject objectives

Students are familiarized with the fundamentals about environmental issues.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_K06] has awareness of the importance of non-technical aspects and effects of engineering activities, including its impact on the environment and the associated responsibility for decisions.	The student is aware of the significance of decisions made during non-technical and engineering activities on the environment.	[SK5] Assessment of ability to solve problems that arise in practice [SK2] Assessment of progress of work
[K6_W03] has a basic knowledge of soil, air and water pollutants, design and supervision of environmentally friendly technologies and technologies which do not produce waste, knows technology of cleaning and neutralization of industrial waste and wastewater management, has a basic understanding of the theoretical basis of methods and types of apparatus used in chemical analysis of environmental pollutants	The student knows issues related to environmental protection against pollution. He is able to identify sources of pollution and knows how they affect the environment. The student knows and distinguishes technologies that have an impact on the environment.	[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	The student understands the impact of the undertaken activities on the environment and notices their environmental, economic and legal aspects. The student knows the basic principles of health and safety.	[SU2] Assessment of ability to analyse information

<table>
<tr><td>Subject contents</td><td>Basic information about the environment and its components. Classifications sources of emissions to the environment due to: - Sources of emissions: - Nature of human activity - The range of the impact of emission sources. Classification of processes due to: - Degree of impact to the environment - How to eliminate the impact of technological systems on the environment. Basic information on how to waste gas, waste water treatment and utilization of by-products and waste. Presentation of the basic processes and responses, which are subject to contamination at the stage of environmental emissions. Discussion of the basic techniques of environmental protection against pollution (protection of restoration, remediation and prevention technologies, emissions). The importance of the various elements of the environment for technological processes.

Classes and materials were prepared with the use of skills acquired through participation in the POWER 3.4 project - "Improvement of didactic competences of academic teachers of the Gdańsk University of Technology"</td></tr>
<tr><td>Prerequisites and co-requisites</td><td>Knowledge of the fundamentals of chemistry</td></tr>
<tr><td>Assessment methods and criteria</td><td><table><tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr><tr><td>Exam</td><td>60.0%</td><td>100.0%</td></tr></table></td></tr>
<tr><td>Recommended reading</td><td><table><tr><td>Basic literature</td><td>1. J. H. Rule, Problemy nauki o środowisku, Wydawnictwo UMCS, Lublin 1994

2. B. J. Alloway, D. C. Ayres, Chemiczne podstawy zanieczyszczenia środowiska, Wydawnictwo Naukowe PWN, Warszawa, 1999

3. E. U. von Weizsacker, A. B. Lowins, L. H. Lovins, mnożnik cztery (podwojony dobrobyt – dwukrotnie mniejsze zużycie zasobów naturalnych), Wydawnictwo „Rolewski“, Toruń, 1999

4. P. O’Neill, Chemia środoiwska, Wydawnictwo Naukowe PWN, Warszawa, 1997

5. A. Johansson, Czysta technologia, Środowisko- Technika-Przyszłość, WNT, Warszawa, 1997</td></tr><tr><td>Supplementary literature</td><td>1. S. F. Zakrzewski, Podstawy toksykologii środowiska, Wydawnictwo Naukowe PWN, Warszawa, 1995</td></tr><tr><td>eResources addresses</td><td></td></tr></table></td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td></td></tr>
<tr><td>Work placement</td><td>Not applicable</td></tr>
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