University of Gdańsk

Subject card

Subject name and code	Environment revitalization techniques, PG_00103544						
Field of study	Environmental Protection						
Date of commencement of studies	October 2024		Academic year of realisation of subject	2026/2027			
Education level	Bachelor's studies		Subject group	Optional subject group			
Mode of study	full-time studies		Mode of delivery	at the university			
Year of study	3		Language of instruction	Polish			
Semester of study	5		ECTS credits	1.0			
Learning profile	academic		Assessment form	credit			
Conducting unit	Laboratory of Advanced Oxidation Processes -> Department of General and Inorganic Chemistry -> Faculty of Chemistry -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor	dr Aleksandra Bielicka-Giełdoń					
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	0.0	0.0	0.0	15
	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	15		2.0	8.0	25	
Subject objectives	Familiarising students with conventional and modern environmental remediation techniques and developing the ability to decide on the feasibility/necessity of using an appropriate method depending on the level of contamination, the economic resources available and the location of the contaminated site.						

Learning outcomes

Course outcome	Subject outcome	Method of verification
[OŚL3_W05] Explains the course of natural and anthropopressional physical, chemical and biological processes and phenomena occurring in nature at various levels of matter organisation.	1. The student shall identify and characterise threats of soil degradation, water pollution and atmospheric pollution, 2. The student shall enumerate and identify pollutants introduced into the individual components of the environment, 3. The student distinguishes and characterises conventional and unconventional techniques of environmental restoration.	[SW4] test/exam - oral or written [SW1] oral statement/ conversation/discussion [SW2] presentation/project/paper/ report [SW5] implementation of a problem task
[OŚL3_W09] Describes the basic methods, techniques and tools that allow the rational use, shaping and restoration of natural resources.	1. The student shall identify and characterise threats of soil degradation, water pollution and atmospheric pollution, 2. The student shall enumerate and identify pollutants introduced into the individual components of the environment, 3. The student distinguishes and characterises conventional and unconventional techniques of environmental restoration.	[SW4] test/exam - oral or written [SW1] oral statement/ conversation/discussion [SW2] presentation/project/paper/ report [SW5] implementation of a problem task
[OŚL3_W02] Characterises the relationships and relationships between various disciplines of natural sciences and science, uses knowledge of mathematics, physics, chemistry and biology in the description of basic concepts, concepts and principles in environmental protection.	1. The student shall identify and characterise threats of soil degradation, water pollution and atmospheric pollution, 2. The student shall enumerate and identify pollutants introduced into the individual components of the environment, 3. The student distinguishes and characterises conventional and unconventional techniques of environmental restoration.	[SW4] test/exam - oral or written [SW1] oral statement/ conversation/discussion [SW2] presentation/project/paper/ report [SW5] implementation of a problem task
[OŚL3_U01] Performs tasks under supervision and independently in the field of analysis of the natural environment and the functioning of natural and man-made natural systems.	The student analyses and evaluates conventional and non-conventional methods of treating soils, waters, and atmosphere in economic and ecological aspects.	[SU1] oral statement/conversation/ discussion [SU2] presentation/project/paper/ report [SU4] test/exam - oral or written [SU5] implementation of a problem task
[OŚL3_K05] Identifies the level of her/his knowledge and skills, demonstrates the need to update knowledge about the environment and its protection, demonstrates the need for continuous professional training and personal development.	1. The student is oriented to the problem of threatening ways of environmental degradation, 2. student formulates opinions on the necessity of preventive measures in society in order to protect the environment.	[SK1] oral statement/conversation/ discussion [SK2] presentation/project/paper/ report
[OŚL3_W08] Explains the mechanisms of economic and consumer pressure on the environment and recognises the possibilities of reducing it using the latest knowledge and scientific achievements.	1. The student shall identify and characterise threats of soil degradation, water pollution and atmospheric pollution, 2. The student shall enumerate and identify pollutants introduced into the individual components of the environment, 3. The student distinguishes and characterises conventional and unconventional techniques of environmental restoration.	[SW4] test/exam - oral or written [SW1] oral statement/ conversation/discussion [SW2] presentation/project/paper/ report [SW5] implementation of a problem task
[OŚL3_U04] Uses specialist language in the discussion and properly uses the nomenclature in the field of environmental protection and individual disciplines related to it.	The student analyses and evaluates conventional and non-conventional methods of treating soils, waters, and atmosphere in economic and ecological aspects.	[SU1] oral statement/conversation/ discussion [SU2] presentation/project/paper/ report [SU4] test/exam - oral or written [SU5] implementation of a problem task

<table>
<tr><td>Subject contents</td><td>Causes and effects of environmental degradationDefinitions and legal standards in the field of environmental restorationEnvironmental review as part of the assessment for remediation/restorationEnvironmental self-cleaning processesProtection and restoration of natural surface waters and groundwaterAir deodorizationPhotochemical and photocatalytic processes in the removal of environmental pollutantsDegraded land - soil and land remediation/reclamation technologiesBioremediation technologiesPlants in environmental renewal (phytoremediation)Remediation methods for metal-contaminated waters and soilsReclamation of mining areasManagement of industrial waste heapsUse of waste in land reclamation processesReclamation of municipal waste landfills</td></tr>
<tr><td>Prerequisites and co-requisites</td><td></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>lecture: test, exercises: group work, presentations, test</td><td>51.0%</td><td>100.0%</td></tr>
</table>
</td></tr>
<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td>materials developed by the teacher</td></tr>
<tr><td>Supplementary literature</td><td>1. Karczewska A., Ochrona gleb i rekultywacja terenów zdegradowanych, Wydawnictwo Uniwersytetu Przyrodniczego we Wrocławiu, Wrocław 2012
2. Błaszczyk M.K., Mikroorganizmy w ochronie środowiska, Wydawnictwo Naukowe PWN, Warszawa 2007
3. Kośmider J., Mazur-Chrzanowska B., Wyszyński B., Odory, Wydawnictwo Naukowe PWN, Warszawa 2002</td></tr>
<tr><td>eResources addresses</td><td></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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