University of Gdańsk

Subject card

Subject name and code	Environmental engineering, PG_00103522						
Field of study	Environmental Protection						
Date of commencement of studies	October 2025		Academic year of realisation of subject		2027/2028		
Education level	Bachelor's 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	5		ECTS credits		2.0		
Learning profile	academic		Assessment form		credit		
Conducting unit							
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. inż. Ewelina Grabowska-Musiał				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	30.0	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		5.0		15.0	50
Subject objectives	Introduce students with the basic technological processes used in water treatment Introduce students with the basic processes of wastewater treatment and treatment of sewage sludge used in municipal wastewater treatment plants and in industrial plants and the devices corresponding to these processes. Acquiring basic knowledge about the types and sources of air pollution and the principles of operation of waste gas purifying devices						

Learning outcomes

Course outcome	Subject outcome	Method of verification
[OŚL3_U12] Uses environmental protection instruments, including the concept of sustainable development, in communicating with the socio-economic environment.	analytical, applicable legal acts in assessing the quality of the natural environment and the effectiveness of devices used in water treatment and sewage treatment	[SU1] oral statement/conversation/ discussion [SU2] presentation/project/paper/ report
[OŚL3_K06] Knows and appreciates the practical application of the acquired knowledge and skills in solving problems.	explains the processes occurring in various elements of the environment after pollutants are introduced into them	[SK5] implementation of a problem task
[OŚL3_W11] Discusses measurement systems and analysis techniques used in monitoring the state of the natural environment.	characterizes and explains methods operation of the devices used in water treatment, wastewater treatment and waste gases	[SW1] oral statement/ conversation/discussion
[OŚL3_U02] Plans, selects appropriate research and measuring equipment and devices, performs physicochemical measurements and experiments; analyses the results and draws conclusions based on them.	plans, performs and interprets basic physical and chemicals of water, sewage and sewage sludge	[SU1] oral statement/conversation/ discussion [SU6] demonstration of practical skills [SU8] observation of student's independent or team work
[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.	explains the principles of selecting water, sewage and waste gas treatment technologies depending on the type of pollutants removed	[SW4] test/exam - oral or written [SW1] oral statement/ conversation/discussion

Subject contents

Mechanical wastewater treatment; Physico-chemical compost testing. Water iron removal. Application of sorption and decarbonisation. Desulphurisation of gases / Remediation of oily soils.

Prerequisites and co-requisites

Aims of education
-Introduce students with the basic technological processes used in water treatment
-Introduce students with the basic processes of wastewater treatment and treatment of sewage sludge used in municipal wastewater treatment plants
and in industrial plants and the devices corresponding to these processes.
- Acquiring basic knowledge about the types and sources of air pollution and the principles of operation of waste gas purifying devices

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
laboratory classes	51.0%	100.0%

Recommended reading

Basic literature	Instructions for auditorium-laboratory exercises developed by employees of the Department of Environmental Technology 2. Hermanowicz I., Dojlido J., Fizyczno-chemiczne badania wody i ścieków, Arkady, Warszawa 1999 3. A.L. Kowal, M. Świderska-Bróż, Oczyszczanie wody, Wydawnictwo Naukowe PWN, Warszawa 2009 4. Dymaczewski Z. (red), Poradnik eksploatatora oczyszczalni ścieków, PZIiTS, Poznań 2011 5. Bartkiewicz B., Oczyszczanie ścieków przemysłowych, Wydawnictwo Naukowe PWN, Warszawa 2007 6. Jędrczak A., Biologiczne przetwarzanie odpadów, Wydawnictwo Naukowe PWN, Warszawa 2007 7. Imhoff K., Kanalizacja miast i oczyszczanie ścieków, Projprzem-EKO, Bydgoszcz 1996 8. Warych J., Oczyszczanie przemysłowych gazów odlotowych, WNT Warszawa 1994
Supplementary literature	none
eResources addresses	

Example issues/ example questions/ tasks being completed

Techniques for removing SO2 from flue gases. Division and characteristics of soil remediation technologies. Techniques used to test the properties of compost. The use of ozonation for the degradation of organic water pollutants. Methods of mechanical and physicochemical wastewater treatment.

Work placement

Not applicable

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