


KAPITAŁ LUDZKI
 NARODOWA STRATEGIA SPÓJNOŚCI

 Projekt współfinansowany przez
 Unię Europejską w ramach
 Europejskiego Funduszu
 Społecznego

UNIA EUROPEJSKA
 EUROPEJSKI
 FUNDUSZ SPOŁECZNY


Course title		ECTS code	
Environmental engineering		7.2.0520	
Name of unit administrating study			
null			
Studies			
faculty	field of study	type	pierwszego stopnia
Wydział Chemii	Ochrona środowiska	form	stacjonarne
		specjalty	Podstawowa
		specialization	Podstawowa
Teaching staff			
dr hab. inż. Ewelina Grabowska-Musiał; dr inż. Aleksandra Pieczyńska			
Forms of classes, the realization and number of hours		ECTS credits	
Forms of classes		6	
Auditorium classes, Laboratory classes, Lecture		classes - 75 h	
The realization of activities		tutorial classes 20 h	
classroom instruction		student's own work - 55 h	
Number of hours		TOTAL: 150 h - 6 ECTS	
Lecture: 30 hours, Laboratory classes: 30 hours, Auditorium classes: 15 hours			
The academic cycle			
2024/2025 winter semester			
Type of course		Language of instruction	
obligatory		polish	
Teaching methods		Form and method of assessment and basic criteria for evaluation or examination requirements	
<ul style="list-style-type: none"> - conducting experiments - multimedia-based lecture - problem solving 		Final evaluation	
		<ul style="list-style-type: none"> - Graded credit - Examination 	
		Assessment methods	
		written exam with open questions	
		The basic criteria for evaluation	
		The basic criteria for evaluation <ul style="list-style-type: none"> • positive note of the written exam consisting of open questions covering the issues listed in the content of the lecture and laboratory exercises, grading scale in accordance with the Regulations of the University of Gdańsk • grade from laboratory exercises will be the average of grades obtained from laboratory exercises and the final test according to the scale in accordance with the University of Gdańsk Studies Regulations Completion of laboratory exercises will be based on the performance of all laboratory exercises provided for in the academic year and obtaining at least 51% of points for cards (8 passes of 5 points), performance of the experimental part covered by the program of classes, activity and cooperation in the group, and compliance with the principles of work safety in chemical laboratory (6 exercises with 2 points each) and preparation of results obtained in the experimental part (6 reports with 3 points each) and obtaining more than 51% of points from the final test covering the abovementioned scope	
Method of verifying required learning outcomes			
Required courses and introductory requirements			
A. Formal requirements			

Formal requirements Matematyka, Fizyka, Chemia ogólna, Chemia nieorganiczna, Chemia analityczna, Biologia, Hydrobiologia, Ekologia, Prawo w ochronie środowiska

B. Prerequisites

Prerequisites describing the course of natural and anthropopressory physical, chemical and biological processes occurring in the natural environment; application of basic methods and techniques of work in a chemical laboratory; defining and searching for applicable legal regulations and instruments of applying the law in environmental protection

Aims of education

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- 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

Course contents

Course contents

Lecture issues

Principles of green chemistry and green engineering. Types and sources of water, soil and air pollution. Water parameters. Municipal and industrial wastewater treatment technologies. Sewage sludge management methods. Classification of soil remediation methods. Physico-chemical methods of soil reclamation. Thermal methods of soil remediation. Air dedusting methods. Dry dedusting. Wet dedusting. Odor control. NOx control. NOx removal from flue gases. Flue gas desulphurization. Air protection by desulfurization of fossil fuels. CO2 emission control. Photocatalytic methods of air purification.

B. Laboratory classes

Mechanical wastewater treatment; Physico-chemical compost testing. Water iron removal. Application of sorption and decarbonisation.

Desulphurisation of gases / Remediation of oily soils.

C. Auditorium exercises:

Solving accounting tasks

Bibliography of literature

Bibliography of literature

Literature required to pass the course

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. Świdorska-Bróż, Oczyszczanie wody, Wydawnictwo Naukowe PWN, Warszawa 2009
4. Dymaczewski Z. (red), Poradnik eksploatatora oczyszczalni ścieków, PZliTS, Poznań 2011
5. Bartkiewicz B., Oczyszczanie ścieków przemysłowych, Wydawnictwo Naukowe PWN, Warszawa 2007
6. Jędrzak 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

Extracurricular readings

The learning outcomes (for the field of study and specialization)

Knowledge

Skills

Social competence

Contact

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