KAPITAŁ LUDZKI
NARODOWA STRATEGIA SPÓJNOŚCI

Projekt współfinansowany przez
Unię Europejską w ramach
Europejskiego Funduszu
Społecznego

UNIA EUROPEJSKA
EUROPEJSKI
FUNDUSZ SPOŁECZNY

Course title	ECTS code
Monographic lecture - Advanced oxidation processes	13.3.0424

Name of unit administrating study

null

Studies

faculty	field of study	type	drugiego stopnia
Wydział Chemii	Chemia	form	stacjonarne
		specialty	chemia biomedyczna, analityka i diagnostyka chemiczna, chemia i technologia środowiska, chemia obliczeniowa
		specialization	wszystkie

Teaching staff

prof. dr hab. inż. Adriana Zaleska-Medynska; dr hab. Dagmara Jacewicz, profesor uczelni

Forms of classes, the realization and number of hours	ECTS credits
Forms of classes	3
Lecture	classes 30 h
The realization of activities	tutorial classes 10 h
classroom instruction	student's own work 35 h
Number of hours	Total: 75 h - 3 ECTS
Lecture: 30 hours	

The academic cycle

2023/2024 summer semester

Type of course	Language of instruction
obligatory	polish

Teaching methods	Form and method of assessment and basic criteria for eveluation or examination requirements
- multimedia-based lecture	**Final evaluation**
- problem-focused lecture	Graded credit
	Assessment methods
	oral course credit
	The basic criteria for evaluation
	Positive assessment of oral credit according to criteria in accordance with the University of Gdansk Studies Regulations

Method of verifying required learning outcomes

Required courses and introductory requirements

A. Formal requirements
none

B. Prerequisites
General and organic chemistry

Aims of education

To familiarize students with the mechanisms of degradation of pollutants in selected advenced oxidation processes
• To familiarize students with the selected devices used for the treatment of liquid and gas streams by AOP

Course contents

A. Lecture topics:
Characterization and classification of advanced oxidation processes (AOP). The mechanism of oxidation of pollutants in the method of wet air oxidation and supercritical oxidation. Characteristics of chemical, photochemical and electrochemical processes for removing impurities from water, soil and air. Production and application of modern materials with catalytic properties in AOP methods. Application of nanostructures in AOP methods.

The use of ozonation for disinfection, removal of organic compounds from the water phase and for deodorization of air streams.

Bibliography of literature

Literature required to pass the course

A. Literatura wymagana do ostatecznego zaliczenia zajęć (zdania egzaminu):

   A.1. wykorzystywana podczas zajęć

1. Barbusiński, Zaawansowane utlenianie ścieków przemysłowych, Politechnika Śląska, 2013r.

2. Burczyk B. Zielona Chemia, Oficyna Wydawnicza Politechniki Wrocławskiej, Wrocław 2006

3. Lewandowski W.M. Proekologiczne żródla energii odnawialnej, WNT W-wa 2001

4. Zarzycki R., Zaawansowane metody utleniania, Politechnika Wrocławska, Wrocław 2002.

A.2. studiowana samodzielnie przez studenta

Materials prepared by the teacher

Extracurricular readings

The learning outcomes (for the field of study and specialization)	Knowledge
	1.Stdent lists and defines the concepts of advanced oxidation processes (AOP), wet oxidation, supercritical oxidation, etc.
	2. Student classifies AOP methods
	4. Student explains and understands the mechanism of degradation in various AOP methods
	5. Student lists and discusses new materials with catalytic properties
	6. Student understands and explains the catalysis process
	7. Student lists and characterizes the basic devices used for cleaning liquid and gas streams using AOP
	8. Student lists examples of the use of AOP methods in the chemical, food and environmental industries
	Skills
	Social competence
	1Student understands the need for further education
	2. Student is aware of the threats arising from environmental degradation and the need for changes in technology.

Contact

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