



KAPITAŁ LUDZKI
NARODOWA STRATEGIA SPÓJNOŚCI

Projekt współfinansowany przez
Unię Europejską w ramach
Europejskiego Funduszu
Społecznego

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Course title		ECTS code	
Waste processing technology		13.3.1210	
Name of unit administrating study			
null			
Studies			
faculty	field of study	type	first tier studies (BA)
Faculty of Chemistry	Chemical Business	form	full-time
		specialty	all
		specialization	all
Faculty of Chemistry	Chemistry	type	first tier studies (BA)
		form	full-time
		specialty	all
Faculty of Chemistry	Environmental Protection	specialization	all
		type	first tier studies (BA)
		form	full-time
		specialty	all
		specialization	all
Teaching staff			
dr inż. Anna Gołębiewska; dr inż. Aleksandra Pieczyńska; dr inż. Anna Malankowska; dr inż. Joanna Nadolna			
Forms of classes, the realization and number of hours		ECTS credits	
Forms of classes		2	
Laboratory classes		classes - 15 h	
The realization of activities		tutorial classes - 15 h	
lectures in the classroom		student's own work - 20 h	
Number of hours		TOTAL: 50 h - 2 ECTS	
Laboratory classes: 15 hours			
The academic cycle			
2023/2024 summer semester			
Type of course		Language of instruction	
an elective course		english	
Teaching methods		Form and method of assessment and basic criteria for evaluation or examination requirements	
Practical laboratory work with project – chemical experiments, analysis of obtained results and discussion		Final evaluation	
		Graded credit	
		Assessment methods	
		short test and project	
		The basic criteria for evaluation	
		Positive grade for the written tests consisting open questions and positive grade for written project.	
		Assessment criteria in accordance with the University of Gdańsk Study Regulations	
Method of verifying required learning outcomes			

Business Chemistry:

The method of verifying the acquisition of knowledge:

Assessment of single and multiple-choice tests in the field of waste processing technology (K_BCh_W02, K_BCh_W06.)

Method of verification- acquiring skills:

Assessment of the written test and the student's involvement in the discussion on issues related to this subject, among others during the consultation (K_BCh_U01, K_BCh_U02, K_BCh_U03, K_BCh_U08)

The method of verifying the acquisition of social competences: The student participates in consultations and prepares himself to pass the subject (K_BCh_K01)

Chemistry:

The method of verifying the acquisition of knowledge:

Assessment of single and multiple-choice tests in the field of waste processing technology (K_W01, K_W10)

Method of verification- acquiring skills:

Assessment of the written test and the student's involvement in the discussion on issues related to this subject, among others during the consultation (K_U01, K_U02)

The method of verifying the acquisition of social competences: The student participates in consultations and prepares himself to pass the subject (K_K01, K_K02)

Environmental Protection:

The method of verifying the acquisition of knowledge:

Assessment of single and multiple-choice tests in the field of waste processing technology (K_OŚI_W01, K_OŚI_W02, K_OŚI_W07)

Method of verification- acquiring skills:

Assessment of the written test and the student's involvement in the discussion on issues related to this subject, among others during the consultation (K_OŚI_U02, K_OŚI_U04)

The method of verifying the acquisition of social competences: The student participates in consultations and prepares himself to pass the subject (K_OŚI_K02, K_OŚI_K03)

Required courses and introductory requirements**A. Formal requirements**

lack

B. Prerequisites

lack

Aims of education

To acquaint students with waste processing technologies.

Course contents

Definition and classification of waste. The ink removal from waste paper by flotation method, cellulose determination. Hydrometallurgical recovery of silver. Management of plastics - raw material and energy recycling. Determination of crude fat in food products by the extraction method in the Soxhlet apparatus. Volatile ashes management.

Bibliography of literature

Literature required to pass the course

Thomas Christensen- Solid Waste Technology and Management

Extracurricular readings

Singh, Jiwan; Kalamdhad, Ajay - Advances in Waste Management

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

Chemical Business:

K_BCh_W02 enumerates laws and theories in chemistry, physics and mathematics necessary to formulate and solve simple engineering tasks

K_BCh_W06 enumerates unit processes and describes issues in the field of technology and chemical engineering
K_BCh_U01 based on the acquired knowledge, identifies, analyses and solves engineering tasks and problems in broadly understood chemistry

K_BCh_U02 uses methods, techniques and tools in

Knowledge

- defines the basic concepts of waste processing
- lists and describes the processes used in the processing, use and disposal of waste
- describes the construction and operating principles of the installation for physico-chemical, biological and thermal waste treatment
- discusses the impact of waste production and processing technologies on the natural environment

Skills

formulating and solving engineering tasks in the field of chemistry
 K_BCh_U03 plans, selects the appropriate research and measuring equipment and performs chemical experiments; analyses the results and draws conclusions based on them
 K_BCh_U08 uses the chemical nomenclature and engineering terminology properly
 K_BCh_K01 identifies the level of her/his own knowledge and skills as well as the need to update engineering knowledge, continuous professional training, and personal development

Chemistry:

K_W01 enumerates laws and theories in chemistry, physics, mathematics, and biology
 K_W10 enumerates and describes the aspects of the construction, operation and use of measuring apparatus and equipment used in experimental works in the field of chemistry and related sciences
 K_U01 identifies, analyses, and solves problems in the field of broadly understood chemistry on the basis of the acquired knowledge
 K_U02 performs analyses using experimental methods and draws conclusions based on them
 K_K01 identifies the level of her/his own knowledge and skills and the need for continuous learning and personal development
 K_K02 works individually demonstrating initiative and independence of activity and cooperates in a team fulfilling various roles in it

Environmental Protection:

K_OŚI_W01 describes at an advanced level the physical, chemical, and biological phenomena occurring in nature as well as geological, geomorphological and climatic conditions of the functioning of nature
 K_OŚI_W02 characterises at an advanced level 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
 K_OŚI_W07 explains at an advanced level the causal relationship between the content of specific pollutants and the state of the environment (including human health) and the occurrence of adverse phenomena on a local, regional, and global scale
 K_OŚI_U02 plans, selects appropriate research and measuring equipment and devices, performs physicochemical measurements and experiments; analyses the results and draws conclusions based on them
 K_OŚI_U04 uses specialist language in the discussion and properly uses the nomenclature in the field of environmental protection and individual disciplines related to it
 K_OŚI_K02 works individually demonstrating initiative and independence in actions, and effectively cooperates in a team, performing various roles in it
 K_OŚI_K03 independently sets or implements a set action plan specifying priorities for its implementation; critically assesses its progress

The student is able to:

- choose a management method for selected types of municipal and industrial waste,
- describes the environmental impact of selected waste treatment installations
- evaluate the effectiveness of the processes used in waste management

Social competence

Student:

- is aware of the negative impact of waste on the environment.
- follows the safety rules in force in the chemical laboratory.
- collaborates in a team during laboratory tests and processing of results.
- links the importance of the development of waste management technologies for the good condition of the natural environment and human health;

Contact

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