


**KAPITAŁ LUDZKI**  
 NARODOWA STRATEGIA SPÓJNOŚCI

 Projekt współfinansowany przez  
 Unię Europejską w ramach  
 Europejskiego Funduszu  
 Społecznego

**UNIA EUROPEJSKA**  
 EUROPEJSKI  
 FUNDUSZ SPOŁECZNY


<b>Course title</b>		<b>ECTS code</b>	
Waste processing technology		13.3.1210	
<b>Name of unit administrating study</b>			
null			
<b>Studies</b>			
<b>faculty</b>	<b>field of study</b>	<b>type</b>	pierwszego stopnia
Wydział Chemii	Biznes chemiczny	<b>form</b>	stacjonarne
		<b>specjalty</b>	wszystkie
		<b>specialization</b>	wszystkie
Wydział Chemii	Chemia	<b>type</b>	pierwszego stopnia
		<b>form</b>	stacjonarne
		<b>specjalty</b>	chemia biomedyczna, chemia kosmetyków, analityka i diagnostyka chemiczna, chemia żywności
Wydział Chemii	Ochrona środowiska	<b>specialization</b>	wszystkie
		<b>type</b>	pierwszego stopnia
		<b>form</b>	stacjonarne
		<b>specjalty</b>	wszystkie
		<b>specialization</b>	wszystkie
<b>Teaching staff</b>			
dr inż. Anna Gołąbiewska; dr inż. Anna Malankowska; dr inż. Aleksandra Pieczyńska; dr inż. Joanna Nadolna			
<b>Forms of classes, the realization and number of hours</b>		<b>ECTS credits</b>	
<b>Forms of classes</b>		2	
Laboratory classes		classes - 15 h	
<b>The realization of activities</b>		tutorial classes - 15 h	
classroom instruction		student's own work - 20 h	
<b>Number of hours</b>		TOTAL: 50 h - 2 ECTS	
Laboratory classes: 15 hours			
<b>The academic cycle</b>			
2025/2026 summer semester			
<b>Type of course</b>		<b>Language of instruction</b>	
an elective course		English	
<b>Teaching methods</b>		<b>Form and method of assessment and basic criteria for evaluation or examination requirements</b>	
Practical laboratory work with project – chemical experiments, analysis of obtained results and discussion		<b>Final evaluation</b>	
		Graded credit	
		<b>Assessment methods</b>	
		short test and project	
		<b>The basic criteria for evaluation</b>	
		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	
<b>Method of verifying required learning outcomes</b>			
<b>Required courses and introductory requirements</b>			
<b>A. Formal requirements</b>			
lack			
<b>B. Prerequisites</b>			
lack			
<b>Aims of education</b>			

To acquaint students with waste processing technologies.	
<b>Course contents</b>	
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.	
<b>Bibliography of literature</b>	
Literature required to pass the course Thomas Christensen- Solid Waste Technology and Management	
Extracurricular readings Singh, Jiwan; Kalamdhad, Ajay - Advances in Waste Management	
<b>The learning outcomes (for the field of study and specialization)</b>	<b>Knowledge</b>
	<b>Skills</b>
	<b>Social competence</b>
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 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	<ul style="list-style-type: none"> <li>- defines the basic concepts of waste processing</li> <li>- lists and describes the processes used in the processing, use and disposal of waste</li> <li>- describes the construction and operating principles of the installation for physico-chemical, biological and thermal waste treatment</li> <li>- discusses the impact of waste production and processing technologies on the natural environment</li> </ul>
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	<p>The student is able to:</p> <ul style="list-style-type: none"> <li>- choose a management method for selected types of municipal and industrial waste,</li> <li>- describes the environmental impact of selected waste treatment installations</li> <li>- evaluate the effectiveness of the processes used in waste management</li> </ul>
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	<p>Student:</p> <ul style="list-style-type: none"> <li>- is aware of the negative impact of waste on the environment.</li> <li>- follows the safety rules in force in the chemical laboratory.</li> <li>- collaborates in a team during laboratory tests and processing of results.</li> <li>- links the importance of the development of waste management technologies for the good condition of the natural environment and human health;</li> </ul>

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

## Contact

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