University of Gdańsk

Subject card

Subject name and code	Green technology, PG_00121253		
Field of study	Chemical Business, Chemistry, Environmental Protection		
Date of commencement of studies	October 2026	Academic year of realisation of subject	2027/2028
Education level	Master's studies	Subject group	Optional subject group
Mode of study	full-time studies	Mode of delivery	at the university
Year of study	2	Language of instruction	Polish
Semester of study	3	ECTS credits	1.0
Learning profile	academic	Assessment form	credit
Conducting unit	Laboratory of Advanced Oxidation Processes -> Department of General and Inorganic Chemistry -> Faculty of Chemistry -> Rector		
Name and surname of lecturer (lecturers)	Subject supervisor	prof. dr hab. Ewa Siedlecka	
	Teachers		

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	0.0	0.0	15.0	0.0	0.0	15

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	15	2.0	8.0	25

Subject objectives

familiarizing students with the principles of green technology, sustainable development and chemical safety

Learning outcomes

Course outcome	Subject outcome	Method of verification
[CHEMMU2_W05] Has extended knowledge in the field of the specialisation studied.	can use basic terminology in the field of green technologies and green synthesis	[SW1] oral statement/ conversation/discussion [SW2] presentation/project/paper/ report
[CHEMMU2_K01] Knows the limitations of her/his own knowledge; understands the need for further education and can inspire other people to do so.	- performs experiments based on instructions, and solves problems during their execution. - discusses and formulates own opinions based on presented knowledge	[SK1] oral statement/conversation/ discussion [SK2] presentation/project/paper/ report
[CHEMMU2_W11] Demonstrates general knowledge about the current trends in the development of chemistry as a science and the latest discoveries in this field.	lists and discusses examples of green chemical syntheses and methods of obtaining green energy	[SW1] oral statement/ conversation/discussion [SW2] presentation/project/paper/ report

Subject contents

Philosophy of green chemistry, principles of green technology. The concept of sustainable development. Creating chemical processes and products that do not harm the environment. Green plastics and technologies for their production. Advanced catalytic processes. Use of sunlight in synthesis processes. Alternative reagents and reaction media. Waste biomass as a substrate in organic synthesis. Ionic liquids and fluorinated compounds as modern solvents and reagents. Application of biphase systems and intelligent solvents. Reactions occur without the participation of solvents. New methods of conducting reactions. Electrochemical reactions - application of new electrode materials. Fuel and microbiological cells. Photochemical reactions. Syntheses assisted by microwave radiation. Reactions assisted by acoustic waves. Examples of eco-innovations in the plastics, cosmetics and pharmaceutical, food industries. Technologies for managing industrial and hazardous waste. The laboratories will include exercises on selected topics covered during the lectures.

Prerequisites and co-requisites

non

<table>
<tr><td>Assessment methods and criteria</td><td colspan="3"><table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td>activity during classes</td><td>51.0%</td><td>20.0%</td></tr>
<tr><td>assessment of task performance, tests and reports</td><td>51.0%</td><td>80.0%</td></tr>
</table></td></tr>
<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td colspan="2">literature given by the teacher during the class</td></tr>
<tr><td>Supplementary literature</td><td colspan="2">independently searched by the student literature</td></tr>
<tr><td>eResources addresses</td><td colspan="2"></td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td colspan="3"></td></tr>
<tr><td>Work placement</td><td colspan="3">Not applicable</td></tr>
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