



Subject card

Subject name and code	Industrial Syntheses of Organic Compounds, PG_00045473						
Field of study	Chemical Technology						
Date of commencement of studies	February 2022	Academic year of realisation of subject				2021/2022	
Education level	second-cycle studies	Subject group				Optional subject group Subject group related to scientific research in the field of study	
Mode of study	Full-time studies	Mode of delivery				at the university	
Year of study	1	Language of instruction				Polish	
Semester of study	1	ECTS credits				5.0	
Learning profile	general academic profile	Assessment form				assessment	
Conducting unit	Department of Organic Chemistry -> Faculty of Chemistry						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. Sławomir Makowiec				
	Teachers		dr hab. Sławomir Makowiec dr inż. Patrycja Szumała dr hab. inż. Justyna Kucińska-Lipka dr inż. Maciej Sienkiewicz dr inż. Konrad Trzcinski dr hab. inż. Sebastian Demkowicz				
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	30.0	15.0	0.0	75
	E-learning hours included: 0.0						
	Przemysłowe syntezy związków organicznych - Moodle ID: 22854 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=22854						
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	75	10.0	40.0	125		
Subject objectives	The aim of the course is to introduce students to the problems related to the synthesis of organic compounds, their transformation and properties, with particular emphasis on practical and industrial applications.						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	K7_W06	The student will acquire knowledge about the acid-base properties of organic compounds. The student will acquire knowledge about nucleophilicity and electrophilicity, The student will acquire knowledge about the synthesis of basic organic compounds obtained on an industrial scale, such as: substrates for polymer synthesis, surfactants, plant protection products, dyes and pigments, glues, paints, popular anti-inflammatory drugs.			[SW1] Assessment of factual knowledge [SW3] Assessment of knowledge contained in written work and projects		
	K7_U07	Student is able to design a synthesis, determine the required substrates and process chemistry in the case of obtaining the basic organic compounds used in industry.			[SU2] Assessment of ability to analyse information [SU3] Assessment of ability to use knowledge gained from the subject		

Subject contents	<ol style="list-style-type: none"> 1. Repetition of the basics of organic chemistry. 2. Introduction to patenting on the example of non-steroidal anti-inflammatory drugs. 3. Introduction to organic synthesis - retrosynthesis. 4. Fragrances 5. Dyes and pigments. 6. Surface-active agents. 7. Wood protection measures. 8. Synthesis and properties of fluoroalkanes. 9. Natural Polymers. 10. Adhesives, paints, silicones 11. Substrates for the synthesis of polymers. 12. Herbicides and Insecticides. 13. Top pharmaceutical products, sildenafil flux. 														
Prerequisites and co-requisites	Knowledge of the basics of organic chemistry, knowledge of the properties and reactivities of basic groups of organic compounds such as aliphatic, aromatic hydrocarbons, alkyl halides, amine, alcohols, aldehydes and ketones, phenols, carboxylic acids and their derivatives, amino acids.														
Assessment methods and criteria	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 40%;">Subject passing criteria</th> <th style="width: 30%;">Passing threshold</th> <th style="width: 30%;">Percentage of the final grade</th> </tr> </thead> <tbody> <tr> <td>Laboratory</td> <td>60.0%</td> <td>20.0%</td> </tr> <tr> <td>seminars</td> <td>60.0%</td> <td>30.0%</td> </tr> <tr> <td>colloquia</td> <td>60.0%</td> <td>50.0%</td> </tr> </tbody> </table>			Subject passing criteria	Passing threshold	Percentage of the final grade	Laboratory	60.0%	20.0%	seminars	60.0%	30.0%	colloquia	60.0%	50.0%
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Recommended reading	Basic literature Supplementary literature eResources addresses	Organic Chemistry T. Robert Thornton Morrison, Robert Neilson Boyd Organic Chemistry J. McMurry Introduction to organic synthesis - Skarzewski Jacek													
Example issues/ example questions/ tasks being completed	How are prepared: SDS, Freon R-12, Ibuprofen obtained. Why glue "drop" is not suitable for gluing polyethylene. Which insecticides are toxic to mammals.														
Work placement	Not applicable														