GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Organic chemistry, PG_00060859						
Field of study	Chemia organiczna						
Date of commencement of studies	October 2024		Academic year of realisation of subject	2025/2026			
Education level	first-cycle studies		Subject group	Obligatory subject group in the field of study 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	2		Language of instruction	Polish			
Semester of study	4		ECTS credits	5.0			
Learning profile	general academic profile		Assessment form	exam			
Conducting unit	Department of Organic Chemistry -> Faculty of Chemistry -> Faculties of Gdańsk University of Technology						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. Magdalena Śliwka-Kaszyńska				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	30.0	0.0	0.0	0.0	60
	E-learning hours included: 0.0						
	eNauczanie source addresses: Moodle ID: 17610 2021/2022 TCH Chemia Organiczna part 2 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=17610						
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	60	10.0	80.0	150		
Subject objectives	Understanding the structure, physicochemical properties and reactivity of organic compounds						

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_W02] has knowledge of inorganic, organic, physical and analytical chemistry useful for obtaining selected groups of compounds, determining their physical and chemical properties allowing for their quantitative and qualitative analysis, making measurements and determining the parameters of chemical reactions, phenomena and processes occurring in chemical technology	The student has knowledge of the chemical structures of organic compounds, recognizes the structures of organic compounds. The student knows the nomenclature of organic compounds and the relationship between the structure of an organic compound and its reactivity.	[SW3] Ocena wiedzy zawartej w opracowaniu tekstowym i projektowym
[K6_K02] understands the non-technical aspects and implications of the activities of a chemical engineer, including the impact on the environment, is aware of professional behaviour, observance of professional ethics and respect for diversity of views and cultures	The student is aware of the impact of chemical processes and the production of organic compounds and their use in industry, with particular emphasis on their impact on the environment	[SK4] Ocena umiejętności komunikacji, w tym poprawności językowej [SK5] Ocena umiejętności rozwiązywania problemów występujących w praktyce
[K6_U03] is able to apply knowledge of inorganic, organic, physical and analytical chemistry and identify appropriate sources of information to design and synthesize simple chemical compounds, carry out basic physicochemical and analytical measurements	The student is able to use knowledge of organic chemistry to design and synthesize organic compounds.	[SU3] Ocena umiejętności wykorzystania wiedzy uzyskanej w ramach przedmiotu [SU5] Ocena umiejętności zaprezentowania wyników realizacji zadania
[K6_U11] individually plans and implements his/her own learning	The student is able to independently plan the time and form of learning.	[SU4] Ocena umiejętności korzystania z metod i narzędzi

Subject contents

Course content – lecture
Phenols, Organometallic Compounds
Carbonyl Compounds; Structure, Reactivity
Nucleophilic Addition Reactions to Carbonyl Group
Aldol Condensation Reactions.
Carboxylic Acids, Structure and Physical Properties; Carboxyl Group Reactions
Carboxylic Acid Derivatives: Acid Chlorides, Anhydrides, Esters and Amides, Nitriles
Claisen Condensation Reactions and Related Processes
Malonate Syntheses
Amines
Diazonium Salts
Nucleophilic Addition Reactions to a,b-Unsaturated Carbonyl Compounds
Carbolic Acid Derivatives
Halogenoacids, Hydroxyacids, Amino Acids

Course content – exercises
Phenols, Organometallic Compounds
Carbonyl Compounds; Structure, Reactivity
Nucleophilic Addition Reactions to Carbonyl Group
Aldol Condensation Reactions.
Carboxylic Acids, Structure and Physical Properties; Carboxyl Group Reactions
Carboxylic Acid Derivatives: Acid Chlorides, Anhydrides, Esters and Amides, Nitriles
Claisen Condensation Reactions and Related Processes
Malonate Syntheses
Amines
Diazonium Salts
Nucleophilic Addition Reactions to a,b-Unsaturated Carbonyl Compounds
Carbolic Acid Derivatives
Halogenoacids, Hydroxyacids, Amino Acids

Prerequisites and co-requisites

Structure of elements and their compounds, especially carbon; concepts of acids, bases and salts; types of reactions; geometry of molecules; kinetics and thermodynamics of chemical reactions

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
lecture colloquia	60.0%	100.0%

Recommended reading

Basic literature	R. T. Morison; R. N. Boyd; Organic Chemistry, PWN Scientific Publishing House, Warsaw 1996. J. McMurry Organic Chemistry, PWN Scientific Publishing House, Warsaw 2000. J. D. Caserio, M. C. Roberts, ORGANIC CHEMISTRY, PWN Warsaw, 1969

	Supplementary literature	J. March Organic Chemistry - reactions, mechanisms, structure. Scientific and Technical Publishing House, Warsaw 1975. J. Gawroński, K. Gawrońska, K. Kacprzak, M. Kwit CONTEMPORARY ORGANIC SYNTHESIS, WN PWN Warsaw 2004. J. March ORGANIC CHEMISTRY - Reactions, mechanisms, structure, WNT Warsaw 1975. H. O. House MODERN REACTIONS OF ORGANIC SYNTHESIS, PWN Warsaw 1979. T. W. G. Solomons ORGANIC CHEMISTRY - 6th ed, John Wiley & Sons, Inc. New York, 1996
	eResources addresses	
Example issues/ example questions/ tasks being completed	1. Propose the conditions for the synthesis of acetylsalicylic acid from phenol. 2. Write the mechanism of hydrolysis of 1,1-dimethoxycyclohexane under the influence of acid.	
Practical activites within the subject	Not applicable	

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