GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Organic Chemistry, PG_00060851		
Field of study	Chemical Technology		
Date of commencement of studies	October 2026	Academic year of realisation of subject	2027/2028
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	3	ECTS credits	4.0
Learning profile	general academic profile	Assessment form	assessment
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	15.0	30.0	0.0	0.0	0.0	45

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	45	10.0	65.0	120

Subject objectives

The aim of the course is to provide an understanding of the structure and physicochemical properties of organic compounds, to develop knowledge of the reactivity of saturated and unsaturated aliphatic hydrocarbons, aromatic compounds, alcohols, and ethers, as well as to gain an understanding of the mechanisms of the reactions they undergo.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_W02] Possesses the chemical knowledge necessary to synthesize, analyze and evaluate the properties of compounds and processes used in chemical technology.	recognizes the structures of organic compounds, has knowledge of the nomenclature of organic compounds, explains the relationship between the structure of an organic compound and its reactivity, identifies atomic and molecular orbitals.	[SW3] Assessment of knowledge contained in written work and projects
[K6_U03] Uses chemical knowledge to design compounds, perform physicochemical and analytical measurements, and obtain appropriate sources of information.	is able to use knowledge of inorganic, organic, physical, and analytical chemistry to obtain specific chemical compounds and determine their physicochemical properties.	[SU3] Assessment of ability to use knowledge gained from the subject [SU4] Assessment of ability to use methods and tools

Subject contents

Course content – lecture
Structure and reactivity of: alkanes, cycloalkanes, alkenes, alkynes, dienes, arenes, alcohols, ethers, epoxides.

Reaction mechanisms: free radical substitution, nucleophilic substitution, electrophilic substitution, elimination, cycloaddition, electrophilic addition.

Course content – exercises
The topics discussed and reinforced during the auditorium exercises include: the structure and reactivity of alkanes, cycloalkanes, alkenes, alkynes, dienes, arenes, alcohols, ethers, and epoxides, as well as reaction mechanisms such as free radical substitution, nucleophilic and electrophilic substitution, and elimination, cycloaddition, and electrophilic addition reactions.

Prerequisites and co-requisites

Basic topics in inorganic and physical chemistry.

<table>
<tr><td>Assessment methods and criteria</td><td colspan="2"><table><tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr><tr><td>4 written tests</td><td>60.0%</td><td>100.0%</td></tr></table></td></tr>
<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td>R. T. Morison; R. N. Boyd; Chemia Organiczna, Wydawnictwo naukowe PWN, Warszawa 1996.

J. McMurry Chemia Organiczna, Wydawnictwo naukowe PWN, Warszawa 2000.

J. D. Caserio, M. C. Roberts, CHEMIA ORGANICZNA, PWN Warszawa, 1969.</td></tr>
<tr><td>Supplementary literature</td><td>J. March Chemia Organiczna- reakcje , mechanizmy , budowa. Wydawnictwo Naukowo Techniczne , Warszawa 1975.

J. Gawroński, K. Gawrońska, K. Kacprzak, M. Kwit WSPÓŁCZESNA SYNTEZA ORGANICZNA, WN PWN Warszawa 2004.

J. March CHEMIA ORGANICZNA - Reakcje, mechanizmy, budowa, WNT Warszawa 1975.

H. O. House NOWOCZESNE REAKCJE SYNTEZY ORGANICZNEJ, PWN Warszawa 1979.

T. W. G. Solomons ORGANIC CHEMISTRY - 6th ed, John Wiley & Sons, Inc. New York, 1996.</td></tr>
<tr><td>eResources addresses</td><td></td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td colspan="2">Draw the chemical structures of the following hydrocarbons: 6-isopropyl-2,3-dimethylnonane, cyclobutylcyclobutane, 3-methylhept-2-ene, (2,2-dimethylpropyl)cyclohexane, /E/-3-hexyne, meta-bromophenol.

Write the reaction mechanism of tert-butyl chloride with ethanol.

Based on resonance structures, determine the direction of substitution in: nitrobenzene, aniline, and bromobenzene.

Give the products of the reaction of propene with: hydrogen chloride, water in an acidic medium, hydrogen bromide in the presence of peroxides, hydrogen on platinum.</td></tr>
<tr><td>Practical activites within the subject</td><td colspan="2">Not applicable</td></tr>
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