GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Organic chemistry, PG_00060859		
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	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

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] Possesses the chemical knowledge necessary to synthesize, analyze and evaluate the properties of compounds and processes used in chemical technology.	draws correct structural formulas of organic compounds, recognizes the structures of organic compounds, has knowledge of the nomenclature of organic compounds.	[SW1] Assessment of factual knowledge
[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 [SU2] Assessment of ability to analyse information [SU4] Assessment of ability to use methods and tools

<table>
<tr><td>Subject contents</td><td>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</td></tr>
<tr><td>Prerequisites and co-requisites</td><td>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</td></tr>
<tr><td>Assessment methods and criteria</td><td><table><tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr><tr><td>lecture colloquia</td><td>60.0%</td><td>100.0%</td></tr></table></td></tr>
<tr><td>Recommended reading</td><td><table><tr><td>Basic literature</td><td>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</td></tr><tr><td>Supplementary literature</td><td>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</td></tr><tr><td>eResources addresses</td><td></td></tr></table></td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td>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.</td></tr>
<tr><td>Practical activites within the subject</td><td>Not applicable</td></tr>
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