GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Principles of General Technology, PG_00037486		
Field of study	Biotechnology		
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
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	general academic profile	Assessment form	assessment
Conducting unit	Department of Chemistry and Technology of Functional Materials -> Faculty of Chemistry -> Wydziały Politechniki Gdańskiej		
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Anna Schmidt	
	Teachers		

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	15.0	0.0	0.0	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	1.0	9.0	25

Subject objectives

Knowledge of basic concepts in the field of technology. The ability to describe the process using a schematic diagram and mass balance.

Learning outcomes

Course outcome	Subject outcome	Method of verification
K6_W08	The student independently analyzes exemplary biotechnological processes. The student indicates possibilities of modifying existing processes. The student suggests changes enabling the transformation of individual chemical processes into biotechnological ones.	[SW3] Assessment of knowledge contained in written work and projects [SW2] Assessment of knowledge contained in presentation [SW1] Assessment of factual knowledge
K6_U10	The student has the skills to design simple biotechnological processes. Is able to prepare schematic diagrams and material balance of the analyzed process	[SU5] Assessment of ability to present the results of task [SU4] Assessment of ability to use methods and tools [SU3] Assessment of ability to use knowledge gained from the subject [SU2] Assessment of ability to analyse information [SU1] Assessment of task fulfilment

Subject contents

Principles of green engineering. Chemical technology as applied science. The genesis of a new technological process. Basic raw materials and auxiliary materials in production. Chemical concept of the method. Technological concept of the method. Unit processes. Schematic and technological scheme. Mass and heat balance of the process. Technological principles. Examples of biotechnological processes.

Prerequisites and co-requisites

Knowledge of chemical and biotechnological equipment.

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
test (1 hour)	60.0%	100.0%

Recommended reading	Basic literature	1. Marek Adamczak, Włodzimierz Bednarski, Jan Fiedurek, Fundamentals of industrial biotechnology, 1st edition, Polish Scientific Publishers PWN, Warsaw 2020 2. Jerzy Piotrowski, Józef Szarawara, Theoretical foundations of chemical technology, 1st edition, Scientific and Technical Publishers, Warsaw 2010
	Supplementary literature	1. Włodzimierz Bednarski, Arnold Reps, Food Biotechnology, 2nd edition, Polish Scientific Publishers PWN, WNT, Warsaw, 2020 2. Bjorn Kristiansen, Colin Ratledge, Translator: Stanisław Bielecki, Aleksander Chmiel, Andrzej Konowicz, Fundamentals of biotechnology, 1st edition, Polish Scientific Publishers PWN, Warsaw 2013
	eResources addresses	
Example issues/ example questions/ tasks being completed	1. On the basis of the drawing showing the technological diagram of the process, a schematic diagram should be drawn. 2. Based on a verbal description of the technological process, draw a technological and schematic diagram. 3. Prepare a mass balance based on the technological description. 4. By analyzing the technological description of the process, make a judgment about compliance with the requirements of green engineering principles and technological principles.	
Work placement	Not applicable	

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