GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Chemistry and Biochemistry, PG_00064117		
Field of study	Mechanical and Medical Engineering		
Date of commencement of studies	October 2026	Academic year of realisation of subject	2026/2027
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	1	Language of instruction	Polish
Semester of study	2	ECTS credits	4.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Institute of Mechanics and Machine Design -> Faculty of Mechanical Engineering and Ship Technology -> Faculties of Gdańsk University of Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	Ewa Stelmańska	
	Teachers	Ewa Stelmańska	

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	30.0	0.0	15.0	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	5.0	50.0	100

Subject objectives

Obtaining basic information on chemistry and biochemistry necessary for a medical engineer.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_U01] is able to acquire knowledge and self-studying, he/she is able to find needed information in specialist books, databases and other sources, he/she is able to integrate information and draw conclusions, he/she is able to communicate by using different technics in work and outside	The student is able to find new biochemical information, make correct interpretation and express correct conclusion.	[SU4] Assessment of ability to use methods and tools
[K6_W01] has knowledge in the field of natural sciences, including mathematics, contemporary physics, chemistry, and human anatomy with physiology	The student recognizes basic chemical compounds building the human body. He has a basic knowledge about metabolic processes undergoing in human body and understand the effect of external environment on these processes.	[SW1] Assessment of factual knowledge

Subject contents

Course content – lecture
Chemical composition of human body. Structure and function of enzymes. Structure and metabolism of carbohydrates, lipids, proteins and nucleic acids. Structure and function of some hormones and vitamins. Iron metabolism and hemoglobin structure and function. Metabolic specificities and integration of metabolism. Effect of external environment on human metabolism. Aparatus and methods used in biochemical studies.

Prerequisites and co-requisites

Basic chemistry and biology. Knowledge of basic structure of the human body. Knowledge of basic principles of laboratory work. A coat is required for lab classes.

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Final written test	60.0%	100.0%

Recommended reading

Basic literature	Biochemia, seria "Lippincott's Illustrated Reviews", Denise R. Ferrier, Urban & Partner - Wrocław 2018.

	Supplementary literature	Biochemia Harpera (ilustrowana), wydanie VII uaktualnione, PZWL Warszawa 2018 Postępy Biochemii (czasopismo Polskiego Towarzystwa Biochemicznego)
	eResources addresses	
Example issues/ example questions/ tasks being completed	Sample questions: 1. which compound is classified as a steroid? (Select one best answer) a. collagen b. citrate c. cholesterol d. glycogen e.ATP Example topics: 1.Effects of respiratory chain inhibitors on NAD- and FAD-dependent substrate oxidations. 2. Role of vitamins in regulation of human metabolism.	
Practical activites within the subject	Not applicable	

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