

。 GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Basic Biotechnology, PG_00047872								
Field of study	Biomedical Engineering, Biomedical Engineering, Biomedical Engineering								
Date of commencement of studies	October 2022		Academic year of realisation of subject			2024/2025			
Education level	first-cycle studies		Subject group			Optional subject group 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	3		Language of instruction			Polish			
Semester of study	5		ECTS credits			3.0			
Learning profile	general academic profile		Assessment form			assessment			
Conducting unit	Department of Pharmaceutical Technology and Biochemistry -> Faculty of Chemistry								
Name and surname	Subject supervisor	dr hab. inż. Piotr Szweda							
of lecturer (lecturers)	Teachers		dr hab. inż. Piotr Szweda						
		dr inż. Karolina Matejczuk							
Lesson types and methods	Lesson type	Lecture	Tutorial	Laboratory	Projec	t	Seminar	SUM	
of instruction	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	activity Participation in classes include plan		didactic Participation in consultation hours		Self-study		SUM	
	Number of study hours	45		3.0		27.0		75	
Subject objectives	Getting knowledge in the field of basic aspects of pharmaceutical and medicinal biotechnology and getting skills in selected laboratory techniques and experimental methods in these fields								
Learning outcomes	Course outcome		Subject outcome			Method of verification			
	[K6_U51] can conduct laboratory work connected with chemistry and biochemistry, specific to biomedical engineering		The student uses basic research tools and techniques relevant to biological and medical sciences. The student performs simple research tasks under the supervision of a research tutor.			[SU1] Assessment of task fulfilment			
	[K6_W52] Knows and understands, to an advanced extent, selected aspects of chemistry and biochemistry, constituting general knowledge related to the field of study		The student has knowledge of microorganisms and the possibility of their use in biotechnological processes. The student knows the methods of obtaining biologically active substances using various technologies, methods of improving the properties of these substances and the possibilities of their use in industry, agricultrure, medical diagnostics and therapy The student has knowledge of molecular techniques and technologies used in the research of genetic material as well as in the design and modification of it			knowledge			

Subject contents						
	 Subject and scope of biotechnology Public reception and ethical aspects of modern biotechnology GMO, biopesticides and biopolymers Biotechnology in environmental protection Types of cells used in biotechnology Basic techniques of genetic engineering - gene cloning, PCR Technologies of production of recombinant proteins and therapeutic nucleic acids Industrial biotechnological processes Methods of cultivation of mammalian tissue cultures Biotechnologies of antibodies construction and production Methods of tissue regeneration with use of stem and somatic cells Gene therapy and antisense strategy Nanobiotechnology 					
Prerequisites and co-requisites	Knowledge of basic principles of biochemistry and biochemical experimental techniques					
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade			
	Written exam	60.0%	80.0%			
	Evaluation of the reports on experimental exercises	60.0%	20.0%			
Recommended reading	Basic literature	sic literature Materials available for e-learning				
,	Supplementary literature	J. Buchowicz, Biotechnologia molekularna, PWN W-wa 2007 O. Kayser, Podstawy biotechnologii farmaceutycznej, Wydawnictwo UJ, Kraków W-wa, 2006				
	eResources addresses	Adresy na platformie eNauczanie:				
Example issues/ example questions/ tasks being completed	Please discuss the principle of operation of the lactose operon.Please describe the types of stem cells.Please provide examples of beta-lactam antibiotics, what is their molecular target in bacterial cells.What are probiotics?					
Work placement	Not applicable	Not applicable				

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