



Subject card

Subject name and code	DESING OF MANUFACTURING PROCESSES, PG_00054729						
Field of study	Biotechnology						
Date of commencement of studies	October 2023	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	4	Language of instruction			Polish		
Semester of study	7	ECTS credits			2.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Department of Chemistry Technology and Biotechnology of Food -> Faculty of Chemistry -> Faculties of Gdańsk University of Technology						
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Robert Tylingo					
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	0.0	30.0	0.0	30
	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	30		5.0		15.0	50
Subject objectives	The aim of the subject is for students to acquire skills in designing technological processes, taking into account issues consistent with the chosen field of study. In the Technology, Biotechnology and Food Analysis field of study, classes are related to food processing and the HACCP system. In the Biotechnology of Medicines field of study, classes are related to GMP requirements in the pharmaceutical industry. In the Molecular Biotechnology field of study, these classes include issues of technology for the use of genetically modified organisms and legal standards related to this.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	K6_K06	Is able to solve problems and perform tasks independently; is able to independently formulate questions that help solve a given problem; is able to distribute project tasks within the team and supervise the progress of work related to the implementation of the project.	[SK1] Assessment of group work skills [SK3] Assessment of ability to organize work [SK5] Assessment of ability to solve problems that arise in practice [SK2] Assessment of progress of work
	K6_U08	Is able to critically evaluate available technical and biotechnological solutions in industry, and adapt solutions in the project that are economically advantageous from the point of view of the resources necessary for its implementation.	[SU2] Assessment of ability to analyse information [SU3] Assessment of ability to use knowledge gained from the subject [SU4] Assessment of ability to use methods and tools
	K6_U02	Is able to use knowledge of the properties of biomolecules and the course of bioprocesses in the design of biotechnological processes.	[SU4] Assessment of ability to use methods and tools [SU3] Assessment of ability to use knowledge gained from the subject
	K6_W13	He also knows the general principles of creating and developing forms of individual entrepreneurship, which enables him to effectively manage his own projects or business initiatives in the field of biotechnology.	[SW1] Assessment of factual knowledge [SW2] Assessment of knowledge contained in presentation [SW3] Assessment of knowledge contained in written work and projects
	K6_K07	The student has the ability to think and act entrepreneurially in the context of technological design in molecular biotechnology and in the pharmaceutical and food industry. Demonstrates the ability to identify innovative solutions and opportunities for commercial use of research results and development of new products. Is able to independently plan and implement projects that take into account technological, economic, legal and ethical aspects, which translates into his/her ability to introduce innovations to the market.	[SK5] Assessment of ability to solve problems that arise in practice
Subject contents	Course content – project The lecture Copyright law and ethics in the conduct of scientific investigations. Planning of the technological project. Searching databases of scientific information and inventions, trademarks, industrial designs. Selection of the principal of the processing method, characteristics of raw materials, intermediate and final products. The rules for drawing up process flow sheets. Selection of equipment, the general methods of computing equipment, scheduling work apparatus, and preparing the calculation sheet. A description of the technological process. The characteristic of control, measurement, and automation systems. The project The students prepare their technological project in small groups.		
Prerequisites and co-requisites	Knowledge of specialist courses		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Project	60.0%	100.0%
Recommended reading	Basic literature	1. Anderson N.G. Practical Process Research and Development. Academic Press, San Diego, California, USA, 2000. 2. Projektowanie Procesów Technologicznych. Od Laboratorium do Instalacji Przemysłowej. Praca Zbiorowa. OWPW, 2006 3. Pikoń J. Podstawy Konstrukcji Aparatury Chemicznej. Cz. 1, Tworzywa Konstrukcyjne. PWN, Warszawa, 1979.	
	Supplementary literature	Mingus N. Zarządzanie Projektami. ONE Press, 2002.	
	eResources addresses		
Example issues/ example questions/ tasks being completed	Support for Auto CAD software in the implementation of technological diagrams of the designed process.		
Practical activities within the subject	Not applicable		