

Subject card

Subject name and code	Chemical business design, PG_00080784						
Field of study	Chemical Business						
Date of commencement of studies	October 2025		Academic year of realisation of subject			2027/2028	
Education level	Bachelor's 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	3		Language of instruction			Polish	
Semester of study	5		ECTS credits			1.0	
Learning profile	academic		Assessment form			exam	
Conducting unit	Laboratory of Photocatalysis -> Department of Environmental Technology -> Faculty of Chemistry -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Anna Gołębiewska				
	Teachers						
Lesson types	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		2.0		8.0	25
Subject objectives	- Acquainting with the principles of designing of small production enterprises; - Acquainting with with the elements of process design - Acquainting with the principles of economical analysis / determining the profitability of a new production installation						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[BCHINŻ_U01] On the basis of the acquired knowledge, identifies, analyses and solves engineering tasks and problems in broadly understood chemistry.	Prepares a process design: chemical and technological concept	[SU2] presentation/project/paper/report [SU4] test/exam - oral or written [SU5] implementation of a problem task
	[BCHINŻ_K05] Is convinced of the importance of behaving in a professional manner in every situation, taking full responsibility in the field of engineering activities and their impact on the natural environment and compliance with the principles of professional ethics.	Evaluates the technology readiness level The ability to choose a chemical and technological concept	[SK2] presentation/project/paper/report [SK4] test/exam - oral or written [SK5] implementation of a problem task
	[BCHINŻ_W09] Describes the principles of creating and developing forms of individual entrepreneurship using knowledge of economics.	Prepares the business plan for the small company	[SW4] test/exam - oral or written [SW2] presentation/project/paper/report
	[BCHINŻ_U09] Using the acquired knowledge, skills and various sources of scientific information independently prepares written papers and oral presentations.	Distinguishes the patentability of products/ technologies	[SU2] presentation/project/paper/report [SU4] test/exam - oral or written
	[BCHINŻ_W07] Describes the construction and operating principles of basic scientific, technological and control-measuring apparatus.	Correctly presents the technological diagram of the selected process	[SW4] test/exam - oral or written [SW2] presentation/project/paper/report
	[BCHINŻ_U07] Performs a preliminary economic analysis of designed and implemented engineering tasks.	Przygotowuje biznes plan przedsiębiorstwa Identyfikuje i rozpoznaje potrzeby rynku Projektuje małe instalacje produkcyjne oraz określa ich rentowność	[SU2] presentation/project/paper/report [SU4] test/exam - oral or written
	[BCHINŻ_U06] Proposes and makes simple devices, operations or unit processes related to the implementation of the technological process used in the chemical industry, taking into account material and energy balances.	Prepares a process design: chemical and technological concept	[SU2] presentation/project/paper/report [SU4] test/exam - oral or written
	[BCHINŻ_W05] Describes the life cycle of devices, facilities and technical systems as well as modern environment-friendly technical solutions.	It proposes modern, pro-environmental technical solutions	[SW4] test/exam - oral or written [SW2] presentation/project/paper/report
Subject contents	• Designing enterprise organization. • Designing innovative technologies. • Managerial roles and activities. • Elements of process design - mass balance. • Energy balance of the technological process. • Analysis of the energy balance of the process unit. • Corrosion issues and material selection. Process quality control. Measurements and automation. Sewage, waste and gases. Security issues. • Financial plan of the enterprise. • The effectiveness of a business venture and justification of its purposefulness • Enterprise operational plan • Selection of technological devices - technological diagram. • Enterprise marketing plan		
Prerequisites and co-requisites	Prerequisites: Basic knowledge of English, Basics of chemical technology.Basics of general chemistry, Start-up design		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	oral exam	51.0%	100.0%

Recommended reading	Basic literature	1. S. Bretsznajder, Podstawy ogólne technologii Chemicznej, WNT Warszawa 1973. 2. K.Schmidt-Szałowski, M.Szafran, E. Bobryk, J. Sentek, Technologia Chemiczna przemysł nieorganiczny, PWN, Warszawa 2013. 3. L. Synoradzki, J.Wasilewski, Projektowanie procesów technologicznych. Od laboratorium do instalacji przemysłowej. OWPW, Warszawa 2006. 4. L. Synoradzki, J.Wasilewski, Projektowanie procesów technologicznych bezpieczeństwo procesów chemicznych. OWPW, Warszawa 2012. 5. E.Pawłowski, K. Pawłowski, J. Trzcielinska, S. Trzcielinski, Projektowanie biznesu i ocena przedsięwzięć inwestycyjnych, Wydawnictwo Politechniki Poznańskiej 6. Modele biznesowe budowy i rozwoju firm spin off na podbudowie szkoły wyższej, praca zbiorowa pod redakcją: Mieczysława Baka i Przemysława Kulawczuka, IBnDiPP, Warszawa 2010
	Supplementary literature	brak
	eResources addresses	
	Example issues/ example questions/ tasks being completed	1. Discuss the forms of mass balance presentation 2. Elements of the technological diagram.
Work placement	Not applicable	

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