University of Gdańsk

Subject card

Subject name and code	Chemical technology, PG_00080727		
Field of study	Chemical Business		
Date of commencement of studies	October 2024	Academic year of realisation of subject	2025/2026
Education level	Bachelor's 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 Polish
Semester of study	4	ECTS credits	1.0
Learning profile	academic	Assessment form	credit
Conducting unit	Laboratory of Photocatalysis -> Department of Environmental Technology -> Faculty of Chemistry -> Rector		
Name and surname of lecturer (lecturers)	Subject supervisor	prof. dr hab. inż. Adriana Zaleska-Medynska	
	Teachers	dr inż. Anna Gołąbiewska	

Lesson types

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

- To gain knowledge in the field of unit operations
- To gain knowledge in the field of technological principles
- To gain knowledge in the field of the criteria of chemical process concept design
- To develop ability to prepare a schematic diagram
- To gain the knowledge about selected apparatus and devises used in the chemical and food industry
- To gain knowledge with selected technological processes in industry

Learning outcomes

Course outcome	Subject outcome	Method of verification
[BCHINŻ_W07] Describes the construction and operating principles of basic scientific, technological and control-measuring apparatus.	Design the selection of basic devices and apparatus used in chemical and food industry	[SW5] implementation of a problem task
[BCHINŻ_K04] Demonstrates responsibility for the safety of her/ his own and others' work.	Student is aware of the value and responsibility for his/her own work results	[SK8] observation of student's independent or team work
[BCHINŻ_K02] Works individually demonstrating initiative and independence in actions, and effectively cooperates in a team, performing various roles in it.	demonstrates creativity in individual and teamwork and keeps open to the suggestions of the teacher and other team members	[SK8] observation of student's independent or team work
[BCHINŻ_W10] Applies safety and hygiene principles when working on a test and measurement stand or in the field.	Student is aware of the value and responsibility for health and safety rules	[SW5] implementation of a problem task
[BCHINŻ_U02] Uses basic methods, techniques and tools in formulating and solving engineering tasks in the field of chemistry.	Correctly solves tasks in chemical technology with elements of chemical engineering	[SU5] implementation of a problem task
[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.	1.Construct of process flow diagram 2. Classify operation units 3. Analyze mass and energy balance	[SU5] implementation of a problem task
[BCHINŻ_W05] Describes the life cycle of devices, facilities and technical systems as well as modern environment-friendly technical solutions.	understands the concept of modern technological process design	[SW5] implementation of a problem task
[BCHINŻ_W06] Enumerates basic unit processes and describes issues in the field of technology and chemical engineering.	Classify operation units	[SW5] implementation of a problem task

Subject contents

Schematic diagram. Mass balance. Fluid flows. Bernulli's equation. Reynolds number. Flow resistance in pipes. Local resistance. Flow resistance through the filled layer. Centrifugal pump motor power. Processes of heat exchange/transfer/conduction, Selected computational problems of heat exchangers, Distillation. Rectification.

Prerequisites and co-requisites

Prerequisites:

Knowledge of the principles of general chemistry , math,

Additional requirements:

principles of the inorganic chemistry, organic chemistry and analytical chemistry

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
test	51.0%	50.0%
test	51.0%	50.0%

Recommended reading

Basic literature

- Warych J., Aparatura chemiczna i procesowa, Oficyna wydawnicza Politechniki Warszawskiej, Warszawa 1996 J. Szarawara, J. Piotrowski, Podstawy teoretyczne technologii chemicznej, WNT, Warszawa, 2010
- P. Lewicki, Inzynieria procesowa i aparatura przemysłu spozywczego, WNT, 2005
- L. Synoradzki, J. Wisialski, red., Projektowanie procesow technologicznych

	Supplementary literature	• Schmidt-Szałowski K., Sentek J., Podstawy technologii chemicznej. Organizacja procesow produkcyjnych, WPW 2001 • S.Kucharski, J.Głowinski, red., Przykłady i zadania do przedmiotu: podstawy technologii chemicznej, Politechnika Wro-cławska, Wrocław, 2005
	eResources addresses	
Example issues/ example questions/ tasks being completed	Problem calculations in chemical technology with elements of chemical and process engineering	
Work placement	Not applicable	

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