University of Gdańsk

Subject card

Subject name and code	Basics of chemical apparatus, PG_00052424		
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
Semester of study	3	ECTS credits	2.0
Learning profile	academic	Assessment form	exam
Conducting unit	Department of Environmental Technology -> Faculty of Chemistry -> Rector		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Paweł Mazierski	
	Teachers	dr inż. Paweł Mazierski	

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	33.0	50

Subject objectives	- familiarize students with all the issues mentioned in the lecture's program content - developing skills of critical evaluation and interpretation of the work parameters of the discussed devices and analysis of source texts

Learning outcomes

Course outcome	Subject outcome	Method of verification
[BCHINŻ_U05] Evaluates the usefulness and functioning of existing engineering and technical solutions as well as research and measurement methods in the chemical industry.	- knows the operation of devices based on their graphic schemes	[SU4] test/exam - oral or written
[BCHINŻ_W07] Describes the construction and operating principles of basic scientific, technological and control-measuring apparatus.	- defines and presents the construction of typical technological devices - describes, illustrates and explains their functioning - characterizes the basic parameters of their work - understands the relationships and dependencies between their operation and construction	[SW4] test/exam - oral or written
[BCHINŻ_U02] Uses basic methods, techniques and tools in formulating and solving engineering tasks in the field of chemistry.	- uses terminology to present (in written and oral form) the content of the subject	[SU1] oral statement/conversation/ discussion [SU4] test/exam - oral or written
[BCHINŻ_K02] Works individually demonstrating initiative and independence in actions, and effectively cooperates in a team, performing various roles in it.	- Understands the need for continuous education, - is aware of the need for honest and reliable work, - appreciates the need to be able to work in a team in accordance with its role in it, - is aware of the need for a critical analysis of own work - shows cautious criticism in receiving information, especially available in the mass media	[SK1] oral statement/conversation/ discussion
[BCHINŻ_U01] On the basis of the acquired knowledge, identifies, analyses and solves engineering tasks and problems in broadly understood chemistry.	- analyzes the results of calculations, draws conclusions about the correctness of their operation - uses the basic computational techniques used in designing	[SU4] test/exam - oral or written

Subject contents

The topics of the lecture include: presentation of basic information in the field of construction, principles of operation and operation of typical machines and apparatus used in the chemical and related industries, including devices used in environmental protection technologies. The lecture also covers the relationship between the theory of operation of devices and their design, along with the presentation of the relationships that determine the values of their operating parameters. Discussed types of transport and technological machines and apparatuses shown below:
Machines for transporting solids, liquids and gases; (solids conveyors, pumps, fans)
Machines for grinding solids; (crushers, mills)
Apparatus for mixing loose materials, liquids and high viscosity systems
Apparatus for the separation of liquid-solid and liquid-liquid systems (settlers, filters, centrifuges, hydrocyclones)
Apparatus for gas-solid and gas-liquid separation; (dry and wet dust collectors)
Heat exchange apparatus. Evaporators. Mass exchange apparatus; (distillation and rectification apparatus, dryers)

Prerequisites and co-requisites

- Technical Drawing
- Mathematics, physics, chemistry

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Written exam	51.0%	100.0%

Recommended reading

Basic literature	- used during classes - studied independently by the student
Supplementary literature	1. Błasiński H., Młodziński B. - Aparatura przemysłu chemicznego, WNT 1983, 2. Pikoń J., - Aparatura chemiczna, PWN 1978, 3. Bieszk H., Urządzenia do realizacji procesów mechanicznych w technologii chemicznej, Wyd. PG. 2001, 4. Bieszk H., Urządzenia do realizacji procesów cieplnych w technologii chemicznej, Wyd. PG. 2010
eResources addresses	

Example issues/ example questions/ tasks being completed

Work placement

Not applicable