University of Gdańsk

Subject card

Subject name and code	Engineering lecture - Technical and industrial analytics, PG_00080703						
Field of study	Chemical Business						
Date of commencement of studies	October 2026		Academic year of realisation of subject	2029/2030			
Education level	Bachelor's studies		Subject group	Obligatory subject group in the field of study Optional subject group			
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	academic		Assessment form	credit			
Conducting unit	Faculty of Chemistry -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Joanna Nadolna				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	0.0	0.0	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	Familiarizing students with all the topics listed in the lecture syllabus, developing the ability to critically evaluate and interpret the performance parameters of the discussed devices, and analyzing source texts.						

Learning outcomes

Course outcome	Subject outcome	Method of verification
[BCHINŻ_U09] Using the acquired knowledge, skills and various sources of scientific information independently prepares written papers and oral presentations.	Uses terminology necessary for presenting (both in written and oral form) the course content.	[SU4] test/exam - oral or written
[BCHINŻ_U08] Uses the chemical nomenclature and engineering terminology properly.	Uses terminology necessary for presenting (both in written and oral form) the course content.	[SU4] test/exam - oral or written
[BCHINŻ_W07] Describes the construction and operating principles of basic scientific, technological and control-measuring apparatus.	Describes the construction and principles of operation of the scientific, technological, and control-measurement equipment discussed in the lecture.	[SW4] test/exam - oral or written
[BCHINŻ_W06] Enumerates basic unit processes and describes issues in the field of technology and chemical engineering.	Lists the processes and unit operations present in the technological processes discussed in the lecture.	[SW4] 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.	Defines and presents the processes and techniques discussed in the lecture. Describes, illustrates, and explains their functioning, and characterizes the basic parameters of their operation.	[SW4] test/exam - oral or written
[BCHINŻ_K01] Identifies the level of her/his own knowledge and skills as well as the need to update engineering knowledge, continuous professional training and personal development.	Understands the need for continuous education and is aware of the necessity for honest and diligent work.	[SK1] oral statement/conversation/ discussion

Subject contents

Introduction: Introduction to the technology and automation of selected processes,

Technologies for obtaining radioactive isotopes and exemplary technologies for manufacturing products containing radioactive isotopes,

Technologies for obtaining and recovering rare earth elements,

Technologies for obtaining and recovering selected metals,

Technologies for obtaining selected products,

Analytical control of the technological process - introduction, general principles, types,

Summary indicators in analytical control of the technological process,

The role of selected analytical techniques in metal determination in production and industry: ASA, AES, ICP-MS,

The role of selected chromatographic techniques in production and industry (gas and liquid chromatography),

Combined techniques in production and industry,

Quality control of analytical results.

Prerequisites and co-requisites

Understanding of the basics of general chemistry, organic chemistry, and chemical technology.

Assessment methods and criteria

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

Recommended reading	Basic literature	A. Literature required for the final completion of the course (exam sentences): A.1. Used during classes Scientific publications / book titles concerning discussed topics - updated list provided during lectures A.2. Studied independently by the student Individually selected by the student depending on chosen topics B. Supplementary literature Individually selected by the student depending on chosen topics
	Supplementary literature	no
	eResources addresses	
Example issues/ example questions/ tasks being completed		
Work placement	Not applicable	

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