

**Subject card**

<b>Subject name and code</b>	Industrial analysis, PG_00080692						
<b>Field of study</b>	Chemical Business						
<b>Date of commencement of studies</b>	October 2024	<b>Academic year of realisation of subject</b>			2027/2028		
<b>Education level</b>	Bachelor's studies	<b>Subject group</b>			Obligatory subject group in the field of study		
<b>Mode of study</b>	full-time studies	<b>Mode of delivery</b>			at the university		
<b>Year of study</b>	4	<b>Language of instruction</b>			Polish		
<b>Semester of study</b>	7	<b>ECTS credits</b>			1.0		
<b>Learning profile</b>	academic	<b>Assessment form</b>			credit		
<b>Conducting unit</b>	Department of Analytical Chemistry -> Faculty of Chemistry -> Rector						
<b>Name and surname of lecturer (lecturers)</b>	<b>Subject supervisor</b>		dr Dorota Zarzeczkańska				
	<b>Teachers</b>						
<b>Lesson types</b>	<b>Lesson type</b>	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	<b>Number of study hours</b>	15.0	0.0	0.0	0.0	0.0	15
	E-learning hours included: 0.0						
<b>Learning activity and number of study hours</b>	<b>Learning activity</b>	Participation in didactic classes included in study plan		Participation in consultation hours		Self-study	SUM
	<b>Number of study hours</b>	15		2.0		8.0	25
<b>Subject objectives</b>	familiarizing students with the basic groups of industrial analyses familiarizing students with the basic methods of collecting and preparing samples for analysis in industrial plants teaching students to independently (using the descriptions contained in the instructions) conduct basic analyzes used in various fields of industry developing the ability to critically evaluate and interpret the obtained experimental results and analyze source texts						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[BCHINŻ_U02] Uses basic methods, techniques and tools in formulating and solving engineering tasks in the field of chemistry.	1. uses basic analytical techniques used in industrial plants 2. designs and performs simple analytical experiments, receiving equipment	[SU4] test/exam - oral or written
	[BCHINŻ_W03] Describes the techniques of higher mathematics and IT tools necessary to describe and model chemical phenomena and technological processes.	predicts analytical processes and calculates analytical results	[SW4] test/exam - oral or written
	[BCHINŻ_U08] Uses the chemical nomenclature and engineering terminology properly.	uses chemical terminology to the extent necessary to present (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 and illustrates the basic equipment used in industrial analyses	[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.	understands the need to apply safety and ergonomics principles industrial analytical laboratories	[SW1] 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 experiments and draws conclusions regarding the correctness of their course	[SU1] oral statement/conversation/ discussion
	[BCHINŻ_W06] Enumerates basic unit processes and describes issues in the field of technology and chemical engineering.	lists and characterizes techniques for collecting and analyzing samples in industrial plants	[SW4] test/exam - oral or written
[BCHINŻ_U05] Evaluates the usefulness and functioning of existing engineering and technical solutions as well as research and measurement methods in the chemical industry.	analyzes the results of experiments and draws conclusions regarding the correctness of their course	[SU1] oral statement/conversation/ discussion	
Subject contents	taking analytical samples of water, sewage and waste, apparatus and devices for sampling, principles of sample transport and storage, preparation of samples for testing, principles and selection of the analytical method, selected measurement methods in industrial analysis, division and classification of building materials, methods analytical methods used in construction, examples of analytical determinations in construction chemicals, analytical methods and procedures used in the food and pharmaceutical industries		
Prerequisites and co-requisites	-analytical chemistry course  -basic knowledge of analytical chemistry, ability to work in a chemical laboratory, knowledge of basic laboratory glassware, learning the principles of work in an analytical laboratory		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	test	51.0%	100.0%
Recommended reading	<p>Basic literature</p> <p>1. D. A. Skoog, D. M. West, F. J. Holler, S. R. Crouch, Podstawy chemii analitycznej, Tom 2, PWN, Warszawa 2007</p> <p>2. A. Cygański, Metody spektroskopowe w chemii analitycznej, WNT, Warszawa 2009</p> <p>3. W. Szczepaniak, Metody instrumentalne w analizie chemicznej, PWN, Warszawa 2008. Z. Witkiewicz, Podstawy chromatografii, WNT, Warszawa, 2005</p>		

	Supplementary literature	<p>1. L. Czarnecki i inni Chemia w budownictwie Arkady Warszawa 1996</p> <p>2. E. Szczepaniec-Cięciak Chemia Środowiska, Kraków 1999S. Mercik Chemia rolna SGGW Warszawa 2002</p>
	eResources addresses	
Example issues/ example questions/ tasks being completed		
Work placement	Not applicable	

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