1.	Field of study	Materials Science and Engineering
2.	Faculty	Faculty of Science and Technology
3.	Academic year of entry	2023/2024 (winter term), 2024/2025 (winter term)
4.	Level of qualifications/degree	first-cycle studies (in engineering)
5.	Degree profile	general academic
6.	Mode of study	full-time

7.	Seneral information about the module			
Мо	lule name	Chemistry Lab for Engineers		
Mod	lule code	IM1A_CH_2		
Nur	nber of the ECTS credits	4		
Lan	guage of instruction			
	pose and description of the rent of education	The Chemistry Laboratory for Engineers module enables students to consolidate, through practical exercises, their knowledge of the properties of selected inorganic and organic substances, chemical processes and their use in industry and technology, as well as the physicochemical foundations of qualitative and quantitative analysis methods. Students will master the basic skills required in a chemical laboratory and the skills to conduct a chemical experiment and analyze its results. Students will gain practice in making a critical analysis and synthesis of the obtained information.		
con	of modules that must be pleted before starting this lule (if necessary)	not applicable		

8. Learning	outcomes of the module		
Code	Description	Learning outcomes of the programme	Level of competent (scale 1-5)
IM1A_CH2_1	Acquisition of well-established knowledge of the properties of selected inorganic and organic substances as well as the course of chemical processes and their use in industry and technology.	IM1A_W01	3
	Efficient use of reagents, laboratory equipment and simple measuring apparatus. Ability to independently conduct an	IM1A_K02	3
	experiment and correctly interpret the results and evaluate measurement errors.	IM1A_U01	3
		IM1A_U05	3
		IM1A_U08	3
		IM1A_U10	3
IM1A_CH2_3	Knowledge of the most important laboratory work techniques and rules in the chemical laboratory.	IM1A_U10	3
M1A_CH2_4	Planning and organizing individual and team work.	IM1A_U03	3

9.	Methods of co	nducting classes	
	Code	Category	Name (description)
a05		Lecture methods / expository methods	Explanation/clarification

		explication involving the derivation of a predetermined theorem from other, already known ones, in the number of steps specified by the person teaching the course
b04	Problem-solving methods	Activating method – discussion / debate an exchange of views supported by substantive arguments leading to a clash of different views, a compromise or the identification of common positions; it proceeds according to previously agreed-upon rules regarding the time, manner and turn-taking as well as the principles of civil discourse; a discussion is not a competition but aims at finding the best solutions or presenting different points of view; its varieties include brainstorming, Oxford-style debate, panel discussion, decision tree, conference discussion; a debate is an orderly dispute between supporters and opponents of a viewpoint, usually specialists in the field or pre-selected representatives of a group dealing with a common problem
c06	Demonstration methods	Demonstration-imitation a presentation of a model way of performing specific activities accompanied by a commentary; it aims at triggering imitation activities in an individual or in a group of participants observing the activities of the person teaching the course until the right habit is formed through regular exercise; the demonstration-imitation method is combined with a physical practice of activities/behaviours
d03	Programmed learning methods	Working with another teaching tool e.g. using websites in any way or according to the rules set by the teacher; or making use of other subject-specific tools
e01	Practical methods	Laboratory exercise / experiment [also conducted as fieldwork] a method of practical application of knowledge; implemented in three stages: the recognition of a problem induced by the task content, the formulation of the problem and the attempt to solve it accompanied by the assessment of the effects; the goal is to acquire skills, abilities and habits, and to consolidate the acquired knowledge so that it becomes operational; the laboratory method assumes greater independence of learners than carrying out an experiment

1	LO. Forms of teach	Forms of teaching				
	Code	Name		Assessment of the learning outcomes of the module	Learning outcomes of the module	Methods of conducting classes
I	M1A_CH2_fs_1	laboratory classes	45		IM1A_CH2_1, IM1A_CH2_2, IM1A_CH2_3, M1A_CH2_4	a05, b04, c06, d03, e01

11. The student's	work, apart from participation in classes, incl	udes in particular:	
Code	Category	Name (description)	Is it part of the BUNA?
a01	Preparation for classes	Search for materials and review activities necessary for class participation reviewing literature, documentation, tools and materials as well as the specifics of the syllabus and the range of activities indicated in it as required for full participation in classes	No
a02	Preparation for classes	Literature reading / analysis of source materials reading the literature indicated in the syllabus; reviewing, organizing, analyzing and selecting source materials to be used in class	No
a03	Preparation for classes	Developing practical skills activities involving the repetition, refinement and consolidation of practical skills, including those developed during previous classes or new skills necessary for the implementation of subsequent elements of the curriculum (as preparation for class participation)	No
a05	Preparation for classes	Production/preparation of tools, materials or documentation necessary for class participation developing, preparing and assessing the usefulness of tools and materials (e.g. aids, scenarios, research tools, equipment, etc.) to be employed in class or as an aid when preparing for classes	No
b01	Consulting the curriculum and the organization	Getting acquainted with the syllabus content	Yes

	of classes	reading through the syllabus and getting acquainted with its content	
c02		Studying the literature used in and the materials produced in class exploring the studied content, inquiring, considering, assimilating, interpreting it, or organizing knowledge obtained from the literature, documentation, instructions, scenarios, etc., used in class as well as from the notes or other materials/artifacts made in class	No
d01	Consulting the results of the verification of learning outcomes	Analysis of the corrective feedback provided by the academic teacher on the results of the verification of learning outcomes reading through the academic teacher's comments, assessments and opinions on the implementation of the task aimed at checking the level of the achieved learning outcomes	Yes
d02	Consulting the results of the verification of learning outcomes	Development of a corrective action plan as well as supplementary/corrective tasks reviewing and selecting tasks and activities enabling the elimination of errors indicated by the academic teacher, their verification or correction resulting in completing the task with at least the minimum passing grade	Yes

Information on the details of the module implementation in a given academic year can be found in the syllabus available in the USOS system: https://usosweb.us.edu.pl.