1.	**Field of study**	**Chemistry**
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
5.	Degree profile	general academic
6.	Mode of study	full-time

7.	**General information about the module**
Module name	**Elective Module A/B**
Module code	W4-CH-S1-5-MOAB
Number of the ECTS credits	4
Language of instruction	Polish
Purpose and description of the content of education	W ramach obieralnego Modułu A/B student poszerza wiedzę, umiejętności i kompetencje z zakresu różnych dziedzin chemii. Zakres ten obejmuje specjalności i zaawansowane techniki pomiarowe powiązane z głównymi tematami badawczymi realizowanymi w jednostce. Student ma obowiązek zrealizowania dwóch wybranych modułów z czterech oferowanych w danym roku akademickim. Warianty modułu: W4-CH-S1-5-AC - Analityka chemiczna W4-CH-S1-5-CPMB - Chemia polimerów i materiałów ceramicznych W4-CH-S1-5-CO - Chemia obliczeniowa W4-CH-S1-5-CZL - Chemia związków fluorescencyjnych
List of modules that must be completed before starting this module (if necessary)	not applicable

8. Learning outcomes of the module

Code	Description	Learning outcomes of the programme	Level of competenc (scale 1-5)
W4-CH-S1-5-MOAB_1	Zna w stopniu rozszerzonym zagadnienia z wybranej dziedziny chemii	CH_W02	4
W4-CH-S1-5-MOAB_2	Wykazuje umiejętność asocjacji wiedzy z różnych gałęzi chemii i nauk pokrewnych	CH_K01 CH_U01	4 3
W4-CH-S1-5-MOAB_3	Posiada umiejętność posługiwania się specjalistyczną aparaturą pomiarową lub oprogramowaniem w celu uzyskania wyników badań	CH_U05 CH_W03	4 3
W4-CH-S1-5-MOAB_4	Opracowuje wyniki badań własnych i dokonuje krytycznej analizy wyników, uzasadnia i opisuje cel prowadzonych badań, ich metodologię i znaczenie	CH_K02 CH_U01 CH_W05	3 5 4
W4-CH-S1-5-	Potrafi samodzielnie wyszukiwać informacje w literaturze w celu podnoszenia kompetencji zawodowych i osobistych		

MOAB_5		CH_U09	5
W4-CH-S1-5-MOAB_6	Ma świadomość odpowiedzialności za wspólnie realizowane zadania związane z pracą zespołową oraz za bezpieczeństwo pracy w laboratorium chemicznym	CH_U08	4

9.	Methods of conducting classes	
Code	**Category**	**Name (description)**
a01	Lecture methods / expository methods	Formal lecture/ course-related lecture *a systematic course of study involving a synthetic presentation of an academic discipline; its implementation assumes a passive reception of the information provided*
b01	Problem-solving methods	Problem-based lecture *an analysis of a selected scientific or practical problem accompanied by its assessment and an attempt to provide a solution to the issues presented in the lecture as well as the indication of the consequences of the proposed solution*
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*
b08	Problem-solving methods	Activating method – peer learning *learning through the exchange of knowledge in a group/team/pair of students, i.e., in the so-called learning cell; a kind of mutual learning; an approach focused on student activity under the guidance of the person teaching the course; a learning situation where students with a similar level of experience learn from one another*
b09	Problem-solving methods	Activating method – flipped classroom *anticipatory learning; work in class is based on previously studied material indicated by the person teaching the course; preparation outside the classroom serves the purpose of getting familiar with the issues whose knowledge is necessary for participating in the in-class discussion and the training in the related practical skills; the activity is based on the work of students under the guidance of the person teaching the course*
c07	Demonstration methods	Screen presentation *a presentation of synthetic image content using computer graphics, e.g., a series of slides or other multimedia forms, usually accompanied by a commentary; typical components of a screen presentation include text organized into bulleted points, charts, images and animations, sometimes sound effects or music; a multimedia illustration of course content presented in the form of a projected image*
d01	Programmed learning methods	Working with a computer *e.g., Webquest; implementation of educational tasks using electronic and digital devices, computer programs and Internet applications; the academic teacher acts as a consultant; students' work is carried out step by step according to the plan laid own by the person teaching the course and following his instructions, and proceeds towards producing the indicated results within the set deadline*
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
e02	Practical methods	Production exercise – workshop *an activity involving the creation of an object/product according to the rules/principles/description provided by the academic teacher acting as the workshop master*
f02	Methods of self-learning	Individual work with a text *searching for and acquiring new information using textbooks and other written sources (including their digital versions); searching for texts, selecting fragments for analysis/interpretation, using other texts to solve a problem related to the studied issue*
f03	Methods of self-learning	Conceptual work *a (mainly intellectual) activity carried out independently (or in a selected group) resulting in the creation of a concept, idea or project; creating a plan based on a vision; developing a general outline of a project; producing a simplified sketch of the variant versions of a procedure/product/work*

10. Forms of teaching

Code	Name	Number of hours	Assessment of the learning outcomes of the module	Learning outcomes of the module	Methods of conducting classes
W4-CH-S1-5-MOA_fs_1	workshop	60	course work	W4-CH-S1-5-MOAB_1, W4-CH-S1-5-MOAB_2, W4-CH-S1-5-MOAB_3, W4-CH-S1-5-MOAB_4, W4-CH-S1-5-MOAB_5, W4-CH-S1-5-MOAB_6	a01, b01, b04, b08, b09, c07, d01, d03, e01, e02, f02, f03

11. The student's work, apart from participation in classes, includes 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)*	Yes
a04	Preparation for classes	Consulting materials complementary to those indicated in the syllabus *agreeing on materials complementary to those indicated in the syllabus, supporting the implementation of tasks resulting from or necessary for class participation*	Yes
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*	Yes
b01	Consulting the curriculum and the organization of classes	Getting acquainted with the syllabus content *reading through the syllabus and getting acquainted with its content*	No
c02	Preparation for verification of learning outcomes	Studying the literature used in and the materials produced in class	No

		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	
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*	No

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.