

1.	Field of study	Biophysics
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	Methods of Applying Coatings Used in Optical Dispensing
Module code	W4-BF-S1-6-23-49C
Number of the ECTS credits	3
Language of instruction	Polish
Purpose and description of the content of education	The purpose of the module is to familiarize the students with experimental techniques use to refine the surface of optical lenses. During the course, the student will acquire theoretical knowledge and practical skills related to the application of various coatings (hardening, anti-reflective, hydrophobic, functional layers) on the top of the organic and mineral glasses using techniques such as dipping, spin-coating and physical vapor deposition.
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)
E1	Student knows what are the most common refinement methods of optical lenses and what they are used for (hardening, anti-reflective, hydrophobic, multifunctional layers).	U02 W06	1 1
E2	Student know the basic materials used to refine the surface of optical lenses and the basic physical principles of the most common methods and techniques used for that (dipping, spin-coating, PVD).	W01 W06	1 1
E3	Student know how to prepare and characterize thin layers of different thickness and refractive index deposited on glassy surface with the use of spin-coating and PVD methods.	U03 U04 W07	1 1 1
E4	Student know how to interpret reflection characteristics of anti-reflective systems and strategies which can be used to assess the quality of refinement coatings.	U05 U06 W08	1 1 1

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

		<i>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</i>
b07	Problem-solving methods	Activating methods: a case study <i>a comprehensive description of a phenomenon connected with the selected discipline; reflecting the reality, presenting the 'what', 'where' and 'how' of the phenomenon, i.e., all of its key aspects to be discussed in class; used as a reproduction, presentation, discussion or diagnosis of factors that shape the phenomenon or interact with it; an in-depth qualitative analysis and evaluation of a selected phenomenon</i>

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
FZ1	workshop	30	course work	E1, E2, E3, E4	a05, b07

11. The student's work, apart from participation in classes, includes in particular:

Code	Category	Name (description)	Is it part of the BUNA?
a02	Preparation for classes	Literature reading / analysis of source materials <i>reading the literature indicated in the syllabus; reviewing, organizing, analyzing and selecting source materials to be used in class</i>	Yes
a05	Preparation for classes	Production/preparation of tools, materials or documentation necessary for class participation <i>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</i>	Yes
b01	Consulting the curriculum and the organization of classes	Getting acquainted with the syllabus content <i>reading through the syllabus and getting acquainted with its content</i>	No
c02	Preparation for verification of learning outcomes	Studying the literature used in and the materials produced in class <i>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</i>	Yes
c03	Preparation for verification of learning outcomes	Implementation of an individual or group assignment necessary for course/phase/ examination completion <i>a set of activities aimed at performing an assigned task, to be executed out of class, as an obligatory phase/element of the verification of the learning outcomes assigned to the course</i>	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>.