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.	**General information about the module**
Module name	**Polymer Materials**
Module code	IM1A_MPOLIM
Number of the ECTS credits	3
Language of instruction	
Purpose and description of the content of education	The Polymer Materials module provides students with comprehensive knowledge about polymer materials, focusing on the relationships between their structure and properties. The main objective of the module is to enable students to deepen their understanding of these connections and develop skills related to the use of traditional and modern polymer materials. Within the module, students learn to identify, formulate, and solve engineering tasks related to polymer materials, taking into account various aspects such as economics, law, ethics, and ecology. The module aims to shape students' awareness of a responsible approach to the design, production, and utilization of polymer materials.
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)
IM1A_POLIM_1	Understanding the relationships between the structure of macromolecules and the properties of polymer materials, as well as comprehending the methods and mechanisms of reactions leading to the formation of polymers.	IM1A_W02 IM1A_W03	3 3
IM1A_POLIM_2	Understanding the physical states of polymers, the processes leading to the formation of amorphous, crystalline, and cross-linked polymers, and familiarizing oneself with liquid crystals and electrically conductive polymers.	IM1A_W02 IM1A_W03 IM1A_W08	3 3 3
IM1A_POLIM_3	The ability to determine the structure and molecular masses of polymer materials using the appropriate analytical method.	IM1A_U05	3
IM1A_POLIM_4	Ability to use the acquired knowledge to prepare the workplace, perform the assigned task and develop detailed documentation of its implementation.	IM1A_K02 IM1A_U01 IM1A_U05 IM1A_U08 IM1A_U10	3 3 3 3 3

IM1A_POLIM_5	Awareness of the need to develop the field of knowledge on polymers in terms of the production of modern engineering materials.	IM1A_K01 IM1A_K03 IM1A_W08	3 3 3

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*
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*
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*
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*
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*
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*

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
IM1A_POLIM_fs1	lecture	15	course work	IM1A_POLIM_1,	a01, b01, b04, c07

				IM1A_POLIM_2, IM1A_POLIM_5	
IM1A_POLIM_fs2	laboratory classes	30	course work	IM1A_POLIM_3, IM1A_POLIM_4, IM1A_POLIM_5	a05, b04, c06, d03, e01

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)*	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 of classes	Getting acquainted with the syllabus content *reading through the syllabus and getting acquainted with its content*	Yes
c02	Preparation for verification of learning outcomes	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.