

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	e module		
Mod	lule name	Innovative Engineering Materials		
Mod	lule code	IM1A_IMI		
Nun	nber of the ECTS credits	4		
Lan	guage of instruction			
	ent of education	Within the module Innovative Engineering Materials, students gain comprehensive knowledge about various groups of engineering materials, including their structure, properties, applications, and manufacturing processes. The module also focuses on the latest trends and innovations in the field of engineering materials, which are crucial for the development of modern technologies. Students acquire not only a solid foundation in engineering materials but also develop environmental awareness and the ability to analyze economic factors when selecting suitable materials. Upon completion of the module, students become better equipped with the skills and knowledge necessary for further study dedicated to specific groups of engineering materials in subsequent semesters.		
com	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_MI_1	Having detailed knowledge of individual materials for specific applications, as well as familiarity with developmental trends in the area of various material groups.	IM1A_W02 IM1A_W08	3
IM1A_MI_2	Having knowledge of the structure and properties of key groups of engineering materials that is useful for selecting the appropriate material when manufacturing technical products.	IM1A_W03 IM1A_W04 IM1A_W07	3 3 3
IM1A_MI_3	Having the ability to compare the mechanical, technological, and operational properties of materials and to select appropriate engineering materials for technical applications; the ability to assess the economic factors associated with the use of different engineering materials.	IM1A_U04 IM1A_U05 IM1A_U07	3 3 3
IM1A_MI_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_U03 IM1A_U05	3 3 3 3

		IM1A_U08 IM1A_U10	3 3
IM1A_MI_5	Demonstrating readiness to collaborate with designers and technologists.	IM1A_K01	3
		IM1A_K02	3
		IM1A_K03	3

		IM1A_K03
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 teacl	Forms of teaching				
Code	Name		Assessment of the learning outcomes of the module	Learning outcomes of the module	Methods of conducting classes
IM1A_MI _fs_1	lecture	30	exam	IM1A_MI_1, IM1A_MI_2	a01, b01, b04, c07
IM1A_MI _fs_2	laboratory classes	30	course work	IM1A_MI_3, IM1A_MI_4, IM1A _MI_5	a05, b04, c06, d03, e01

11. The studen	t's work, apart from participation in classes, inclu	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 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: <a href="https://usosweb.us.edu.pl">https://usosweb.us.edu.pl</a>.