

1.	<b>Field of study</b>	<b>Biomedical Engineering</b>
2.	Faculty	Faculty of Science and Technology
3.	Academic year of entry	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

<b>7. General information about the module</b>	
<b>Module name</b>	<b>Manufacturing of surgical templates and custom-fit implants</b>
Module code	08-IBPR-S1-20-6-WSCD
Number of the ECTS credits	5
Language of instruction	English
Purpose and description of the content of education	Celem zajęć jest przedstawienie studentom procesu wytwarzania dedykowanych implantów oraz szablonów chirurgicznych. Studenci samodzielnie wykonają segmentację elementów anatomicznych wraz z rejonami zajętyymi nowotworem. Następnie zaprojektują dedykowany implant i 3 szablony chirurgiczne: szablon do przeprowadzenia resekcji nowotworu, szablon do przygotowania graftów oraz szablon pozycjonujący. Efektem końcowym będą wydruki implantów i szablonów najlepiej wykonanych przez studentów.
List of modules that must be completed before starting this module (if necessary)	not applicable

<b>8. Learning outcomes of the module</b>			
Code	Description	Learning outcomes of the programme	Level of competenc (scale 1-5)
K_1	Dysponuje wiedzą z zakresu segmentacji danych medycznych oraz modelowania siatek ze szczególnym uwzględnieniem CSG.	W10 W11	5 5
K_2	Dysponuje wiedzą z zakresu anatomii oraz materiałoznawstwa pozwalającą na optymalizację kształtu i wielkości szablonów oraz implantów.	W05 W07	3 3
K_3	Dysponuje biegłą umiejętnością wykonania segmentacji dowolnych danych medycznych.	U11	5
K_4	Biegłe dobiera narzędzia i techniki modelowania przy sporządzaniu szablonów i dedykowanych implantów.	U07 U21 U24	4 4 4
K_5	Potrafi komunikować się w języku angielskim podczas wykonywania procedur z zakresu technologii informacyjnej i inżynierii biomedycznej.	U06	3
K_6	Potrafi pracować zarówno samodzielnie, jak i w grupie. Nabywa umiejętność poszukiwania nowych rozwiązań technologicznych.	K01 K03 K05	3 3 1

9. Methods of conducting classes		
Code	Category	Name (description)
a01	Lecture methods / expository methods	Formal lecture/ course-related lecture <i>a systematic course of study involving a synthetic presentation of an academic discipline; its implementation assumes a passive reception of the information provided</i>
a03	Lecture methods / expository methods	Description <i>a description of objects, phenomena, processes or people; it involves specifying the structure and characteristic features of the object, phenomenon, or process being described; it is usually accompanied by a demonstration of the described object or by its models, drawings, tables, charts, etc.; a description may take the form of an explanation, classification, justification or comparison</i>
d03	Programmed learning methods	Working with another teaching tool <i>e.g. using websites in any way or according to the rules set by the teacher; or making use of other subject-specific tools</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
k_fs_1	lecture	15	exam	K_1, K_2, K_3, K_4, K_5, K_6	a01
k_fs_2	laboratory classes	30	course work	K_1, K_2, K_3, K_4, K_5, K_6	a03, d03

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 <i>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</i>	No
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>	No
a03	Preparation for classes	Developing practical skills <i>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)</i>	No
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>	No
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>	Yes
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>	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	Yes

		<i>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</i>	
d02	Consulting the results of the verification of learning outcomes	<i>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</i>	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>.