Załącznik nr 3
do Uchwały nr 2303 Senatu Uniwersytetu Medycznego
Z dnia 28 kwietnia 2021 r.

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Syllabus for academic year: 2021/2022 Training cycle: 2020/2025			
Description of the course			
Course	Experimental surgery and biomaterials Chirurgia eksperymentalna i biomateriały	Group of detailed education results Group code C	Group name Preclinical sciences
Faculty	Dentistry		
Major	dentistry		
Level of studies	X uniform magister studies		
Form of studies	X full-time		
Year of studies	II	Semester:	X winter
Type of course	X obligatory		
Language of study	X English		

Number of hours

Form of education

	Lectures (L)	Seminars (SE)	Auditorium classes (AC)	Major Classes – not clinical (MC)	Clinical Classes (CC)	Laboratory Classes (LC)	Classes in Simulated Conditions	Practical Classes with Patient (PCP)	Foreign language Course (FLC)	Physical Education (PE)	Vocational Practice (VP)	Directed Self-Study (DSS)	E-learning (EL)
Winter semester:													
Department of Experimental Surgery and Biomaterial Research													
Direct (contact) education[1]		30											
Distance learning[2]													

1

2

Educational objectives:

C 1. To acquaint students with selected groups of biomaterials applicable dentistry and medicine.

C 2. Analysis of the terminology used in experimental surgery.

C 3. Acquainted with the test biocompatibility of biomaterials and medical devices.

C 4. Transfer of knowledge and experience in planning and carrying out experiments research in vitro and in vivo.

C 5. Shaping the appropriate ethical and proper communication skills

Education result for course in relation to verification methods of the intended education result and the type of class:

Number of deteiled education result	Student who completes the course knows/is able to	Methods of verification of intended education results	Form of didactic class
C.W14	Knows and discusses the mechanisms of inflammatory reaction and wound healing;	Make an oral statement during discussion and multimedia presentation. Single choice test	SE
C.W24	Knows the definition and classification of basic and auxiliary dental materials;	Make an oral statement during discussion and multimedia presentation. Single choice test	SE
C.W25	Knows the composition, structure, method of bonding, properties, purpose and methods of dental biomaterials use;	Make an oral statement during discussion and multimedia presentation. Single choice test	SE
C.W26	Knows and describes the surface properties of tooth hard tissues and dental biomaterials;	Make an oral statement during discussion and multimedia presentation. Single choice test	SE
C.W27	Knows the definition of the phenomenon of adhesion and the mechanisms of producing an adhesive bond as well as procedures for the adhesive preparation of the surface of enamel, dentin and dental biomaterials;	Make an oral statement during discussion and multimedia presentation. Single choice test	SE
C.W29	Knows the mechanisms of degradation (corrosion) of dental biomaterials in the oral cavity and their influence on the biological properties of materials;	Make an oral statement during discussion and multimedia presentation. Single choice test	SE
C.U11	Able to select restorative, prosthetic and bonding biomaterials based on their properties and clinical conditions;	Make an oral statement during discussion and multimedia presentation. Single choice test	SE

* L- lecture; SE- seminar; AC- auditorium classes; MC- major classes (non-clinical); CC- clinical classes; LC- laboratory classes; CSC- classes in simulated conditions; PCP- practical classes with patient; FLC- foreign language course; PE- physical education; VP- vocational practice; DSS- directed self-study; EL- E-learning

Student's amount of work (balance of ECTS points):

Student's workload (class participation, activity, preparation, etc.)	Student Workload
1. Number of hours of direct contact:	30
2. Number of hours of distance learning:	
3. Number of hours of student's own work:	10
4. Number of hours of directed self-study	
Total student's workload	40
ECTS points for course	1,5

Content of classes:

Seminars: 10 times for 3 hours

1. Physical and bio-chemical properties of biomaterials; Mechanical properties of biomaterials.
2. Biomaterials in dentistry and their sterilization.
3. Sterilization of dental tools; Composite biomaterials in dentistry
4. Dental implants - types and application; Hydroxyapatite coatings on dental implants
5. Bone replacement materials in dentistry; Titanium implants
6. Surgical threads - types, application; Adhesives in dental surgery - types, application
7. Tissue fillers - aesthetic medicine; Stem cells in dentistry
8. Natural and artificial saliva - composition, properties and importance; Haemostatic materials in dentistry
9. Bisphosphonates - osteonecrosis of the jaws; GBR - materials for guided bone regeneration
10. Experimental surgery in dentistry, research procedures, planning, assessment.

Basic literature

1. Ratner B. D., Hoffman A. S., Schoen F. J., Lemons J. E.: Biomaterials Science. Elsevier, California 2004
2. Park, Joon, Lakes, R. S.: Biomaterials An Introduction. 2007

Additional literature and other materials

1. Puleo, David A., Bizios, Rena:Biological Interactions on Materials Surfaces, Understanding and Controlling Protein, Cell, and Tissue Responses. 2009,
2. Moriarty, Fintan, Zaat, Sebastian A.J., Busscher, Henk J.: Biomaterials Associated Infection Immunological Aspects and Antimicrobial Strategies 2013,
3. Burdick, Jason A., Mauck, Robert L.: Biomaterials for Tissue Engineering Applications A Review of the Past and Future Trends. 2011.

Preliminary conditions:

Obtaining a credit for the first year and a credit in pre-clinical conservative dentistry in the third semester

Conditions to receive credit for the course:

Student's activity during classes, one choice test. a test is considered to be a class after reaching min 60% of the points.

	Criteria for courses ending with a credit
Credit	Reaching min 60% of the points at the ending test

Unit realizing the course:	Department of Experimental Surgery and Biomaterial Research

Unit address:	St. Bujwida 44 , 50-368 Wroclaw
Telephone:	71/78 40 131 (132,135)
E-mail:	zbigniew.rybak@umed.wroc.pl, maria.szymonowicz@umed.wroc.pl,

Person responsible for the course:	Prof. dr hab. Zbigniew Rybak
Telephone:	71/78 40 131
E-Mail:	zbigniew.rybak@umed.wroc.pl

List of persons conducting specific classes:

Name and surname	Degree/scientific or professional title	Discipline	Performed profession	Form of classes
Zbigniew Rybak	**PhD**	**Medical Sciences**	**Doctor, surgeon**	**seminar**
Wojciech Zakrzewski	**DDS**		**Doctor, dentist**	**seminar**

Date of Syllabus development

29.06.2021 r.

Syllabus developed by

Dr n. med. Maria Szymonowicz

Signature of Head of teaching unit

Prof. dr hab. Zbigniew Rybak

Dean's signature

Uniwersytet Medyczny we Wrocławiu
WYDZIAŁ
LEKARSKO-STOMATOLOGICZNY
DZIEKAN

prof. dr hab. Marcin Mikulewicz