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| **Sylabus 2015/2016** | | | | | | | | | | |
| **Description of the subject** | | | | | | | | | | |
| **Name of the module/subject** | | | **Experimental surgery  and biomaterials** | | | **Group of specific learning outcomes** | | | | |
| **Group code**  **C** | | **Group name**  Preclinical sciences | | |
| **Department** | | | Department of Experimental Surgery and Biomaterials Research | | | | | | | |
| **Faculty** | | | Medical and Dental | | | | | | | |
| **Major** | | | Dentistry | | | | | | | |
| **Specialization** | | | - | | | | | | | |
| **Level of study** | | | Long-cycle studies X \*  1st cycle  2nd cycle  3rd cycle  postgraduate | | | | | | | |
| **Form of studies** | | | full-time X part-time | | | | | | | |
| **Year of studies** | | | II | | Semester | | | | IV | |
| **Type of class** | | | mandatory **X**  optional | | | | | | | |
| **Kind of class** | | | principal basic **X** | | | | | | | |
| **Language of instruction** | | | Polish English **X** other | | | | | | | |
| \* mark as appropriate changing into **X** | | | | | | | | | | |
| **Form of education** | | | | | | **Hours** | | | | |
| Lecture(WY) | | | | | |  | | | | |
| Seminar (SE) | | | | | | 30 | | | | |
| Auditorium classes (CA) | | | | | |  | | | | |
| Major classes - non-clinical (CN) | | | | | |  | | | | |
| Clinical class (CK) | | | | | |  | | | | |
| Laboratory class (CL) | | | | | |  | | | | |
| Specialist - master's classes (CM) | | | | | |  | | | | |
| Simulated classes (CS) | | | | | |  | | | | |
| Language courses (LE) | | | | | |  | | | | |
| Practical classes with a patient (PP) | | | | | |  | | | | |
| Physical education classes - mandatory (WF) | | | | | |  | | | | |
| Professional training (PZ) | | | | | |  | | | | |
| Self-education | | | | | |  | | | | |
| Other | | | | | |  | | | | |
| **In total** | | | | | | 30 | | | | |
| **Education goals:**  **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** | | | | | | | | | | |
| **Matrix of learning outcomes for module/course in relation to methods of verification of intended learning outcomes and form of classes:** | | | | | | | | | | |
| The number of core education outcome | The number of major education outcome | | | Student who passes the module/course  has the knowledge of/knows how to/is capable of | | | Methods of verification of intended learning outcomes achievement (forming and summary) | | | Type of classes  \*\* enter the symbol |
| **W 01** | **CW26** | | | Knows and describes the concept: biomaterial, biocompatibility, hemocompatibility, | | | Say oral presentation during the discussion and multimedia. | | | SE |
| **W 02** | **CW26** | | | Describes and characterizes the group of biomaterials used in medicine and dentistry, | | | Say oral presentation during the discussion and multimedia. | | | SE |
| **W O3** | **CW26** | | | Indicates the physico-chemical and biological properties of individual groups of biomaterials, | | | Say oral presentation during the discussion and multimedia. | | | SE |
| **W 04** | **CW26** | | | Describes and explains the methods research aimed at determine the biocompatibility biomaterials and articles medical, define the concept of in vitro and in vivo | | | Say oral presentation during the discussion and multimedia. | | | SE |
| **W 07** | **CW27** | | | Defines the properties of the adhesive coatings on dental implants and active biodressings. | | | Say oral presentation during the discussion and multimedia  written test, multiple choice test. | | | SE |
| **W 08** | **CW29** | | | Knows the degradation mechanisms of dental biomaterials. | | | Say oral presentation during the discussion and multimedia  written test, multiple choice test. | | | SE |
| **W 09** | **CW29** | | | Knows the corrosion process in the mouth and its effect on tissue. | | | Say oral presentation during the discussion and multimedia  written test, multiple choice test. | | | SE |
| **U 01** | **CU11** | | | Selects a prosthetic materials based on their physicochemical properties and their effect on tissue. | | | Checking the terminology used in dentistry experimental | | | SE |
| **U 01** | **CU11** | | | Selects the reproductive material having a biological response to the implant. | | | Check ability to select research methodology by  evaluation of biomaterials  written test, the test multiple choice | | | SE |
| **K 01** |  | | | Actively participates in the process of creating a presentation on a given topic – multimedia. | | | Observation work group | | | SE |
| **K 02** |  | | | Accepts work in a team and working together in a group in the creation of instances. | | | Behavior towards colleagues. | | | SE |
| **K 03** |  | | | Actively participate in the discussion. | | | Behavior towards colleagues. | | | SE |
| **K 04** |  | | | Integrates with the group and accepted standards of ethical behavior. | | | Behavior towards colleagues. | | | SE |
| **K 05** |  | | | Knows the legal aspects and ethical studies in vivo. | | | Take appropriate  decisions as to the merits selection methodology research in the evaluation biomaterials. | | | SE |
| \*\*WY - lecture; SE - seminar (SE); auditorium classes - CA; CN - principal classes (non-clinical); CL - laboratory classes; CN - specialist (master's) classes; CS - simulated classes; LE - language courses; PP - practical classes with patient; WF - physical education classes (mandatory); PZ - professional training; SK - self-education | | | | | | | | | | |
| Put a cross on a 1 to 3 scale to mark how the above outcomes categorize your classes in terms of knowledge, skills and attitudes e.g.:  Knowledge XXX  Skills XX  Attitudes XX | | | | | | | | | | |
| **Student's workload (ECTS credit balance):** | | | | | | | | | | |
| **Form of student's workload**  (attendance, initiative, preparation to classes, verification etc.) | | | | | | **Student's workload (h)** | | | | |
| 1. Contact hours | | | | | | 30 h | | | | |
| 2. Time dedicated to student's own work | | | | | | 5 h | | | | |
| Total student's workload | | | | | | 35 h | | | | |
| **The ECTS credits per module/subject** | | | | | | 1,5 | | | | |
| Remarks | | | | | |  | | | | |
| **Classes content:** (please put down the classes subject matter in a concise form with the consideration of the form of classes and bearing in mind the fact that the subject matter should translate into the intended learning outcomes) | | | | | | | | | | |
| **Lectures** | | | | | | | | | | |
| **Seminars**  1. Basic concepts and definitions of the biomaterials. 2. Division of biomaterials for different groups based on their physico-mechanical and biological. 3. Biomaterials in dentistry. 4. A comprehensive assessment of the biological part I - evaluation in vitro, in vivo. 5. Alternative test methods.  6. Active biodressings, coatings on implants.  7. Phenomena interfacial adhesion phenomenon. | | | | | | | | | | |
| **Classes** | | | | | | | | | | |
| **Other** *etc….* | | | | | | | | | | |
| **Core 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 sources and other resources:**  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. | | | | | | | | | | |
| **Requirements regarding teaching aids:** (e.g. laboratory, multimedia slide projector, other)  multimedia projector, screen, charts teaching | | | | | | | | | | |
| **Initial conditions:** (minimal conditions to be fulfilled be a student before signing up for the module/course) basic knowledge of physiology and pathology and human anatomy. | | | | | | | | | | |
| **Terms of passing a given course:**  student's activity during classes, one choice test, passing minutes after reaching 60% of the points | | | | | | | | | | |
| **Grade:** | | **Criterion for assessment:** (applies only to courses/modules ending with an exam) | | | | | | | | |
| Very good  (5.0) | |  | | | | | | | | |
| Good plus  (4.5) | |  | | | | | | | | |
| Good  (4.0) | |  | | | | | | | | |
| Sufficiently good  (3.5) | |  | | | | | | | | |
| Sufficient  (3.0) | |  | | | | | | | | |

**Name and address of the unit in charge of module/course, contact (phone number and email address)**

Department of Experimental Surgery and Biomaterials Research, phone: 71/7840132 (131)

50 – 326 Wrocław, 2 Poniatowskiego Str.

Email: [zbigniew.rybak@umed.wroc.pl](mailto:zbigniew.rybak@umed.wroc.pl), [maria.szymonowicz@umed.wroc.pl](mailto:maria.szymonowicz@umed.wroc.pl), [magdalena.ostrowska@umed.wroc.pl](mailto:magdalena.ostrowska@umed.wroc.pl)

**A list of persons giving particular classes including: full name, degree/academic or professional title, field of science, profession, form of classes**

**dr hab. n med. Zbigniew Rybak**

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| **Prepared by:** | **Revised by:** |
| 30.06.2015 r. | Dr Maria Szymonowicz |
| **Signature of the Head of unit in charge of classes** | |
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