|  |
| --- |
| **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 multimediawritten test, multiple choice test. | SE |
| **W 08** |  **CW29** | Knows the degradation mechanisms of dental biomaterials. | Say oral presentation during the discussion and multimediawritten 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 multimediawritten 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 byevaluation 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 appropriatedecisions 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 XXAttitudes 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, maria.szymonowicz@umed.wroc.pl, 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**

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