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| FACULTY: | **Faculty of Mechanical Engineering**  Department of Biomedical Engineering |
| FIELD OF STUDY: | **Biomedical Engineering** |
| ERASMUS COORDINATOR OF THE FACULTY: | Igor Maciejewski, DSc, PhD |
| E-MAIL ADDRESS OF THE COORDINATOR: | [igor.maciejewski@tu.koszalin.pl](mailto:igor.maciejewski@tu.koszalin.pl) |
| COURSE TITLE: | **Biomaterials** |
| LECTURER’S NAME: | Prof. Leszek Dobrzański / mgr inż. Katarzyna Mydłowska |
| E-MAIL ADDRESS OF THE LECTURER: | [leszek.adam@gmail.com](mailto:leszek.adam@gmail.com) |
| ECTS POINTS FOR THE COURSE:  COURSE CODE (USOS): | 4 0911>1000-Biom |
| ACADEMIC YEAR: | 2022/2023 |
| SEMESTER:  (W – winter, S – summer) | W |
| HOURS IN SEMESTER: | 45 |
| LEVEL OF THE COURSE:  (1st cycle, 2nd cycle, 3rd cycle) | 1st cycle |
| TEACHING METHOD:  (lecture, laboratory, group tutorials, seminar, other-what type?) | Lectures and Classes (30h+15h) |
| LANGUAGE OF INSTRUCTION: | English |
| ASSESSMENT METOD:  (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?) | written exam |
| COURSE CONTENT: | 1. Definitions and classification of biomaterials.  2. Standards and legal regulations for animal testing.  3. Organization and monitoring of clinical tests.  4. Influence of biomaterials (implants) on the host.  5. In vitro studies on biomaterials - test methods. Clinical tests. Biomaterial certification.  6. Influence of the host on biomaterials (implants): Physical and mechanical effects. Biological effects.  7. Division of biomaterials depending on mechanical, material and biological properties.  8. Division of biomaterials by Hench. Carbon fibers in medicine. Materials for cardiac surgery.  9. Risks associated with the use of biomaterials.  10. Biocompatibility studies of biomaterials in contact with body fluids.  11. Studies on implant degradation in an artificial biological environment.  12. Selected methods of biomaterial testing (SEM, XRD, biological assessment, microbiological assessment, corrosion resistance assessment). |
| ADDITIONAL INFORMATION: | Basic chemistry, physics, mathematics courses completed. Knowledge of basic issues in physics, chemistry and mathematics describing the state of matter. Basic information on materials science. |