|  |  |
| --- | --- |
| 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 |
| COURSE TITLE: | **Implants and artificial organs** |
| LECTURER’S NAME: | Katarzyna Mitura, Ph. D. |
| E-MAIL ADDRESS OF THE LECTURER: | katarzyna.mitura@tu.koszalin.pl |
| ECTS POINTS FOR THE COURSE: | 4 |
| ACADEMIC YEAR: | 2021/2022 |
| SEMESTER:  (W – winter, S – summer) | W |
| HOURS IN SEMESTER: | 30 |
| LEVEL OF THE COURSE:  (1st cycle, 2nd cycle, 3rd cycle) | 1st cycle |
| TEACHING METHOD:  (lecture, laboratory, group tutorials, seminar, other-what type?) | Lectures (30h) |
| LANGUAGE OF INSTRUCTION: | English and medical Latin |
| ASSESSMENT METOD:  (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?) | exam (oral or written) |
| COURSE CONTENT: | 1. Definitions of biomaterial, implant, artificial organ. Definition and biocompatibility conditions for implants. 2. Physical properties of medical materials. 3. Mechanical properties of medical materials. 4. Types of biomaterials and implants: metal, biopolymers, bioceramics, tissue. 5. Artificial organs: eye, heart, kidney, liver, pancreas, upper limb prosthesis, lower limb prosthesis. 6. The use of biomaterials to tissue anastomosis: thread, adhesives, cements. 7. Implants used in orthopedics: shoulder joint, elbow joint, hip joint, knee joint, ankle joint. 8. Examples of implant placement and the use of artificial organs. 9. The use of 3D printing techniques in implantology: pelvic prosthesis - case report. |
| ADDITIONAL INFORMATION: | Knowledge of issues in the field of anatomy and physiology and the basics of biomechanics.  Knowledge of materials science, with particular emphasis on biomaterials. |