|  |  |
| --- | --- |
| FACULTY: | **Faculty of Mechanical and Energy 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, PhD |
| E-MAIL ADDRESS OF THE LECTURER: | katarzyna.mitura@tu.koszalin.pl |
| ECTS POINTS FOR THE COURSE: | 2 |
| ACADEMIC YEAR: | 2024/2025 |
| 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 full time scheme for classes with 5 and more International Erasmus+ students enrolled/accepted;** * **English 50% individually with the teacher + Polish 50% with Polish students or individual project work- scheme for classes with less than 5 International Erasmus+ students enrolled/ accepted;** |
| ASSESSMENT METOD:  (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?) | class test |
| COURSE CONTENT: | 1. Definitions and classification of medical implants.  2. Biocompatibility studies of metal implants in comparison with implants coated carbon coatings.  3. Studies on implant degradation of metal implants in comparison with implants coated carbon coatings in biological environment and body fluids.  4. Cardiac surgery, trauma and orthopedic surgery, maxilla-facial surgery implants - review in the field of new biocompatible and bioactive biomaterials and new technologies of their obtaining.  5. The medical implants manufacturing technologies using classical and additive methods.  6. The discussion of examples of artificial organs, such as an artificial kidney, artificial pancreas, artificial skin, ..etc.  7.Artificial heart, artificial valves and extracorporeal circulation - analysis of clinical cases.  8. The elements of regenerative medicine. |
| 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.  Code: 0911>1000-IiSN |