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| FACULTY: | **Faculty of Mechanical Engineering** |
| FIELD OF STUDY: | **Biomedical Engineering** |
| ERASMUS COORDINATOR OF THE FACULTY: | Igor Maciejewski |
| E-MAIL ADDRESS OF THE COORDINATOR: | igor.maciejewski@tu.koszalin.pl |
| COURSE TITLE: | **Material science** |
| LECTURER’S NAME: | Mieczysław Pancielejko, PhD Eng |
| E-MAIL ADDRESS OF THE LECTURER: | mieczyslaw.pancielejko@tu.koszalin.pl |
| ECTS POINTS FOR THE COURSE: | 3 |
| ACADEMIC YEAR: | 2023/2024 |
| 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?) | Lecture (30h) |
| LANGUAGE OF INSTRUCTION: | English, Polish, (separate group with English depends from number of the incoming students) |
| ASSESSMENT METOD:  (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?) | Presentation and continuous assessment |
| COURSE CONTENT: | The aim of the course is to familiarize students with issues related to engineering materials, in particular the relationship between the structure of metals and their alloys, and the properties and ways of shaping the structure. Students will learn about the properties and application of the main groups of engineering materials in medicine and biomedical engineering.  Fundamentals of the structure of matter. Cold plastic deformation and recrystallization. Phase equilibrium systems. Metastable Fe-Fe3C phase equilibrium system. Foundry iron-carbon alloys - cast irons. Carbon steels. Heat treatment of steels - hardening and tempering. Alloyed steels. Copper and copper alloys. Aluminum and aluminum alloys. Metallic biomaterials. Ceramic materials. Polymers and composites. |
| ADDITIONAL INFORMATION: | Students should know the fundamentals of solid state physics and chemistry. Knowledge of atomic structure and types of chemical bonds is required.  Code: 0911>1000-NoMII |