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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 |
| COURSE TITLE: | **Models of signals and continuous processes** |
| LECTURER’S NAME: | Łukasz Szparaga, Ph. D. |
| E-MAIL ADDRESS OF THE LECTURER: | lukasz.szparaga@tu.koszalin.pl |
| ECTS POINTS FOR THE COURSE: | 5 |
| ACADEMIC YEAR: | 2021/2022 |
| 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 (30h) + Classes (15h) |
| LANGUAGE OF INSTRUCTION: | English |
| ASSESSMENT METOD:  (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?) |  |
| COURSE CONTENT: | Topics during the course: Laplace transformation and its properties. Simple and inverse Laplace transform. Methods of designating originals. Differential and operator description of dynamical systems. Block diagrams and flow graphs of signals. Concepts and criteria of stability. State equations. State equations in operator form. Feedback. Concepts and criteria of stability. Stability in terms of state equations. Fourier transform and spectrum of energy signals. Distribution Fourier transform and spectra of power signals. Transmission and frequency characteristics. Logarithmic frequency characteristics. Nyquist and Bode charts. Stability of feedback circuits. Stock of stability. Passive and active analog filters. Foster and Cauer method synthesis. Synthesis of quadruples. |
| ADDITIONAL INFORMATION: | Knowledge of physics and mathematics from previous courses |