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| FACULTY: | **Faculty of Electronics and Computer Science** |
| FIELD OF STUDY: | **Computer Science** |
| ERASMUS COORDINATOR OF THE FACULTY: | Marcin Walczak, PhD |
| E-MAIL ADDRESS OF THE COORDINATOR: | marcin.walczak@tu.koszalin.pl |
| COURSE TITLE: | **Theory of circuits and signals** |
| LECTURER’S NAME: | Marcin Walczak, PhD |
| E-MAIL ADDRESS OF THE LECTURER: | marcin.walczak@tu.koszalin.pl |
| ECTS POINTS FOR THE COURSE: | 4 |
| COURSE CODE (USOS): | 0711>0400-TOiS |
| ACADEMIC YEAR: | 2025/2026 |
| 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?) | Lecture - 30h  Group tutorials – 15h |
| 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 METHOD:  (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?) | class test |
| COURSE CONTENT: | Concept of current and voltage, charge and E field, circuit elements, Ohm's law, Kirchhoff's Laws, series resistors and voltage divisions, parallel resistors and current divisions, series-parallel combination circuits, power calculation, source transformation. Method of circuit analysis(mesh, nodal, mesh and nodal by inspection), AC circuits (complex number, sinusoids and phasors, impedance and admittance  sinusoidal steady-state analysis (nodal and mesh analyses)  AC power analysis, resonance. first-order circuits, Fourier analysis. |
| ADDITIONAL INFORMATION: | Requirements: complex number, integration and differentiation, matrix account. |

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