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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: | **Mathematical Analysis and Linear Algebra** |
| LECTURER’S NAME: | Dariusz Jakóbczak, PhD |
| E-MAIL ADDRESS OF THE LECTURER: | dariusz.jakobczak@tu.koszalin.pl |
| ECTS POINTS FOR THE COURSE: | 5.0 |
| COURSE CODE (USOS): | 0711>1200-AMiAL |
| ACADEMIC YEAR: | 2025/2026 |
| SEMESTER: (W – winter, S – summer) | S |
| HOURS IN SEMESTER: | 60 |
| 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 – 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?) | written exam,  class test |
| COURSE CONTENT: | Features and graphs of elementary functions (polynomial, homographic, exponential, logarithmic, trigonometric, cyclometric), domain, roots, monotonicity, asymptotes, inverse function, continuous function, derivative of function, calculation of derivative from definition, formulas for derivatives, extremum, convexity, first and second derivative, Taylor series, MacLaurin formula, integrals, method and use of integrals. Matrices (operations, dimensions, features), determinant, inverse matrix, orthogonal matrix, system of equations (methods to solve), Cramer formulas, eigenvalues, eigenvectors, complex numbers (definitions, operations, features), trigonometric and exponential way for complex numbers, equations with complex numbers, analytic geometry in 2D (curves, transformations via matrix operations), analytic geometry in 3D (surfaces, transformations via matrix operations) |
| ADDITIONAL INFORMATION: |  |

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