



Subject card

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|--|---|--|----------|-------------------------------------|--|------------|-----|
| Subject name and code | Mathematics II, PG_00069010 | | | | | | |
| Field of study | Cosmetic technologies | | | | | | |
| Date of commencement of studies | October 2025 | Academic year of realisation of subject | | | 2025/2026 | | |
| Education level | first-cycle studies | Subject group | | | Obligatory subject group in the field of study | | |
| Mode of study | Full-time studies | Mode of delivery | | | at the university | | |
| Year of study | 1 | Language of instruction | | | Polish None | | |
| Semester of study | 2 | ECTS credits | | | 6.0 | | |
| Learning profile | general academic profile | Assessment form | | | exam | | |
| Conducting unit | Mathematics Center -> Vice-Rector For Education | | | | | | |
| Name and surname of lecturer (lecturers) | Subject supervisor | mgr Katarzyna Kujawska | | | | | |
| | Teachers | mgr Katarzyna Kujawska mgr Monika Jędrzejewska | | | | | |
| Lesson types | Lesson type | Lecture | Tutorial | Laboratory | Project | Seminar | SUM |
| | Number of study hours | 30.0 | 45.0 | 0.0 | 0.0 | 0.0 | 75 |
| | E-learning hours included: 0.0 | | | | | | |
| eNauczanie source address: https://enauczanie.pg.edu.pl/2025/course/view.php?id=3626 | | | | | | | |
| Learning activity and number of study hours | Learning activity | Participation in didactic classes included in study plan | | Participation in consultation hours | | Self-study | SUM |
| | Number of study hours | 75 | | 5.0 | | 70.0 | 150 |
| Subject objectives | Students will acquire competence in using mathematical analysis, linear algebra, and spatial geometry, as well as the ability to apply the tools they have learned to solve problems in engineering fields. | | | | | | |
| Learning outcomes | Course outcome | Subject outcome | | | Method of verification | | |
| | [K6_W06] recognizes technological and scientific possibilities and limitations, as well as organizational and economic ones, in cosmetics technology and related fields | The student appreciates the importance of skillful use of mathematical tools. The student is able to draw conclusions and interpret information, as well as formulate and justify opinions. | | | [SW3] Assessment of knowledge contained in written work and projects | | |
| | [K6_W04] selects data analysis methods, including statistical, modeling and artificial intelligence, useful for solving technological and scientific problems in the field of cosmetic technology and related fields | The student is proficient in using the tools of integral calculus of single-variable functions. The student knows the applications of definite integrals. The student is able to solve systems of linear equations. The student is proficient in using concepts related to three-dimensional geometry. | | | [SW1] Assessment of factual knowledge | | |
| Subject contents | <p>Course content – lecture Linear algebra: matrices, matrix operations, solving matrix equations; solving systems of linear equations - Cramer's formula, Kronecker-Capelli theorem. Three-dimensional geometry: vector calculus - scalar product, vector product, mixed product; plane and line in three-dimensional space. Integral calculus of functions of one real variable: calculating indefinite integrals using various methods; definite integrals and their application; improper integrals.</p> <p>Course content – exercises Linear algebra: matrices, matrix operations, solving matrix equations; solving systems of linear equations - Cramer's formula, Kronecker-Capelli theorem. Three-dimensional geometry: vector calculus - scalar product, vector product, mixed product; plane and line in three-dimensional space. Integral calculus of functions of one real variable: calculating indefinite integrals using various methods; definite integrals and their application; improper integrals.</p> | | | | | | |

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| Prerequisites and co-requisites | Knowledge of topics covered in Mathematics I. | | |
| Assessment methods and criteria | Subject passing criteria | Passing threshold | Percentage of the final grade |
| | Written or oral examination | 50.0% | 50.0% |
| | Tests | 0.0% | 50.0% |
| Recommended reading | Basic literature | <p>T. Jurlewicz, Z. Skoczylas - Algebra liniowa 1, wyd. GiS</p> <p>M. Gewert, Z. Skoczylas - Analiza matematyczna 1, wyd. GiS</p> <p>K. Jankowska, T. Jankowski - Zbiór zadań z matematyki, wyd. PG</p> <p>K. Jankowska, T. Jankowski - Funkcje wielu zmiennych, geometria analityczna, całki wielokrotne, wyd. PG</p> | |
| | Supplementary literature | <p>K. Jankowska, T. Jankowski - Zbiór zadań z matematyki, wyd. PG</p> <p>K. Jankowska, T. Jankowski - Funkcje wielu zmiennych, geometria analityczna, całki wielokrotne, wyd. PG</p> | |
| | eResources addresses | | |
| Example issues/ example questions/ tasks being completed | <p>Calculate the indefinite integral</p> <p>Calculate the area/volume/length of the curve</p> <p>Write the equation of the plane/line satisfying the given conditions</p> <p>Solve the matrix equation</p> <p>Solve the system of linear equations</p> | | |
| Practical activities within the subject | Not applicable | | |

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