



Subject card

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|---|---|--|---|-------------------------------------|--|------------|-----|
| Subject name and code | FINANCIAL MATHEMATICS, PG_00061450 | | | | | | |
| Field of study | Engineering Management | | | | | | |
| Date of commencement of studies | October 2024 | | Academic year of realisation of subject | | 2025/2026 | | |
| Education level | first-cycle studies | | Subject group | | Obligatory subject group in the field of study Subject group related to scientific research in the field of study | | |
| Mode of study | Part-time studies (on-line) | | Mode of delivery | | at the university | | |
| Year of study | 2 | | Language of instruction | | Polish | | |
| Semester of study | 3 | | ECTS credits | | 5.0 | | |
| Learning profile | general academic profile | | Assessment form | | assessment | | |
| Conducting unit | Department of Finance -> Faculty of Management and Economics | | | | | | |
| Name and surname of lecturer (lecturers) | Subject supervisor | | dr Piotr Kasprzak | | | | |
| | Teachers | | | | | | |
| Lesson types and methods of instruction | Lesson type | Lecture | Tutorial | Laboratory | Project | Seminar | SUM |
| | Number of study hours | 8.0 | 16.0 | 0.0 | 0.0 | 0.0 | 24 |
| | E-learning hours included: 0.0 | | | | | | |
| 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 | 24 | | 7.0 | | 94.0 | 125 |
| Subject objectives | Identifies concepts and mathematical tools used in finance and banking | | | | | | |
| Learning outcomes | Course outcome | | Subject outcome | | Method of verification | | |
| | [K6_U04] formulates logical solutions to complex or unstructured problems | | analyzes the impact of various factors influencing the studied phenomenon, striving to obtain an optimal solution | | [SU2] Assessment of ability to analyse information | | |
| | [K6_W02] demonstrates advanced preparation in the methods and techniques of formulating and solving problems | | selects appropriate mathematical methods and techniques to analyze financial problems | | [SW1] Assessment of factual knowledge | | |
| Subject contents | Time value of money introduction Simple interest, discount rate, compound interest, continuous capitalization Nominal, equivalent, effective and average interest rate Inflation rate and real interest rate Valuation of short-term debt securities (bills and other debt securities) Models of installments payable in arrears and in advance Perpetual installment Models of equal installments with capitalization more frequent and less frequent than installments Models of installments increasing according to arithmetic and geometric progression Debt repayment Ratios in credit assessment Investment profitability analysis Valuation of long-term debt securities Introduction to the valuation of derivatives The use of a spreadsheet in financial mathematics | | | | | | |
| Prerequisites and co-requisites | | | | | | | |
| Assessment methods and criteria | Subject passing criteria | | Passing threshold | | Percentage of the final grade | | |
| | Tests during the semester | | 60.0% | | 100.0% | | |
| Recommended reading | Basic literature | | Podgórska M., Klimkowska J., Matematyka finansowa, Wydawnictwo Naukowe PWN, Warszawa 2005 Sobczyk M., Matematyka finansowa: podstawy teoretyczne, przykłady, zadania, Agencja Wydawnicza Placet, Warszawa 2006 | | | | |

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| | Supplementary literature | Bień W., Bień A., Kalkulacja ceny pieniądza w lokatach, pożyczkach i kredytach, Difin, Warszawa 2006 Borowski J., Golański R., Kasprzyk K., Melon L., Pogórska M., Matematyka finansowa: przykłady, zadania, testy, rozwiązania, SGH, Warszawa 2003 Kellison S. G., The Theory of Interest, McGraw-Hill, 2008 Matłoka M., Światłowski J., Matematyka finansowa i funkcje finansowe arkusza kalkulacyjnego, Wydawnictwo WSB, Poznań 2003 |
| | eResources addresses | Adresy na platformie eNauczanie: |
| Example issues/ example questions/ tasks being completed | Calculation of the future value of deposits, loan installments, and the expected size of a pension | |
| Work placement | Not applicable | |

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