GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	FINANCIAL MATHEMATICS, PG_00061399		
Field of study	Engineering Management		
Date of commencement of studies	October 2023	Academic year of realisation of subject	2024/2025
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	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 Economic Analysis and Finance -> Faculty of Management and Economics		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Ewa Mazurek-Krasodomska	
	Teachers	dr inż. Ewa Mazurek-Krasodomska	

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
Valuation of long-term debt securities
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
Additional tasks	0.0%	20.0%
Tests during the semester	60.0%	80.0%

Recommended reading

Basic literature

Podgórska, M., Klimkowska, J. (2022). Matematyka finansowa. Warszawa: Wydawnictwo Naukowe PWN.Redo, M., Prewysz-Kwinto, P. (2021). Matematyka finansowa. Warszawa: Wydawnictwo Naukowe PWN.
Sobczyk M., Matematyka finansowa: podstawy teoretyczne, przykłady, zadania, Agencja Wydawnicza Placet, Warszawa 2006

	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: 24/25 Matematyka finansowa N - Moodle ID: 39690 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=39690
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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