GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Financial Mathematics, PG_00040560					
Field of study	Engineering Management					
Date of commencement of studies	October 2021		Academic year of realisation of subject		2022/2023	
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	Full-time studies		Mode of delivery		at the university	
Year of study	2		Language of instruction		Polish	
Semester of study	3		ECTS credits		3.0	
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 Piotr Kasprzak			
	Teachers		dr Piotr Kasprzak			

Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	30.0	0.0	0.0	0.0	30
	E-learning hours included: 0.0						
	Additional information: eNauczanie link's course https://enauczanie.pg.edu.pl/moodle/course/view.php?id=26408						

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	30	6.0	39.0	75

Subject objectives	Introducing students to the basic mathematical concepts and tools used in finance and banking.

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K6_U02] analyses economic problems, including financial ones in various areas of the organisation's functioning, also when formulating and solving engineering tasks	The student is able to apply the acquired knowledge in practice, e.g. assess the value of money in time or decide on the choice of the source of financing (eg the cheapest loan).	[SU1] Assessment of task fulfilment
	[K6_W06] has a basic knowledge of methods and tools for conducting research and analyses related to particular areas of the enterprise's operations and its environment	Student knows the valuation methods of the time value of money.	[SW1] Assessment of factual knowledge
	[K6_W11] has the basic knowledge of mathematics, physics and chemistry necessary to solve technical problems	The student knows the basic economic concepts related to finance, e.g. time value of money, inflation, loan installment.	[SW1] Assessment of factual knowledge

Subject contents	Time value of money introduction; Simple interest, discount rate, compound interest, continuous compounding; Nominal, equivalent, effective and average rate of interest; Inflation rate and real rate of interest; Valuation of short-term securities (bonds and other securities); Annuity immediate and annuity due ; Perpetuities; Annuities payable more and less frequently than interest is convertible; Payments varying in arithmetic and geometric progression; Repayment of debts analysis Measurement of investment performance; Valuation of long-term securities; Introduction to the valuation of derivative instruments; Using a spreadsheet in financial mathematics.

Prerequisites and co-requisites	

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Midterm colloquium	60.0%	100.0%

Recommended reading	Basic literature	1. Podgórska M., Klimkowska J., Matematyka finansowa, Wydawnictwo Naukowe PWN, Warszawa 2005. 2. Sobczyk M., Matematyka finansowa: podstawy teoretyczne, przykłady, zadania, Agencja Wydawnicza Placet, Warszawa 2006.
	Supplementary literature	1. Bień W., Bień A., Kalkulacja ceny pieniądza w lokatach, pożyczkach i kredytach, Difin, Warszawa 2006. 2. Borowski J., Golański R., Kasprzyk K., Melon L., Pogórska M., Matematyka finansowa: przykłady, zadania, testy, rozwiązania, SGH, Warszawa 2003. 3. Kellison S. G., The Theory of Interest, McGraw-Hill, 2008. 4. Matłoka M., Światłowski J., Matematyka finansowa i funkcje finansowe arkusza kalkulacyjnego, Wydawnictwo WSB, Poznań 2003
	eResources addresses	Uzupełniające Adresy na platformie eNauczanie: 22-23 Matematyka finansowa Zarz inż. - Moodle ID: 26408 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=26408
Example issues/ example questions/ tasks being completed	Calculation of the future value of investments, credit instalments and expected retirement value.	
Work placement	Not applicable	