GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Financial Mathematics, PG_00044439		
Field of study	Engineering Management		
Date of commencement of studies	October 2020	Academic year of realisation of subject	2021/2022
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	4	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	16.0	0.0	0.0	0.0	16

E-learning hours included: 0.0

Adresy na platformie eNauczanie:

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	16	6.0	53.0	75

Subject objectives

To acquaint students with the basic concepts and mathematical 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 analyzes the influence of selected factors on the value of the investment. The student chooses the optimal loan offer. The student calculates the APRC. The student builds an optimal investment portfolio.	[SU2] Assessment of ability to analyse information
[K6_W11] has the basic knowledge of mathematics, physics and chemistry necessary to solve technical problems	The student notices the need to expand knowledge and is able to develop it.	[SW3] Assessment of knowledge contained in written work and projects
[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	The student identifies the methods of valuation of money in time.	[SW1] Assessment of factual knowledge

Subject contents

Simple interest, discount rate, compound interest, continuous capitalization; Nominal, equivalent, effective and average interest rates; Inflation rate and real interest rate; Construction of an optimal investment portfolio; Valuation of short-term debt securities (bills and other debt securities); Post and upfront installment models; Perpetual installment; Equal installment models with capitalization more frequent and less frequent than installments; Debt repayment; Valuation of long-term debt securities; Introduction to the valuation of derivatives.

Prerequisites and co-requisites	Basic math skills. Knowledge of the value of money and the functioning of basic market mechanisms.

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Final test	60.0%	30.0%
Additional tasks	0.0%	10.0%
Test during semester	60.0%	60.0%

Recommended reading

Basic literature	1. Kellison S. G., The Theory of Interest, McGraw-Hill, 2008; 2. Podgórska M., Klimkowska J., Matematyka finansowa, Wydawnictwo Naukowe PWN, Warszawa 2013; 3. Cegłowski B., Podgórski B., *Finanse z arkuszem kalkulacyjnym*¸ Wydawnictwo Naukowe PWN, Warszawa 2014. 4. Kowalczyk P., Poprawska E., Ronka-Chmielowiec W., Metody aktuarialne, Wydawnictwo Naukowe PWN, Warszawa 2013.
Supplementary literature	1. Borowski J., Golański R., Kasprzyk K., Melon L., Pogórska M., Matematyka finansowa: przykłady, zadania, testy, rozwiązania, SGH, Warszawa 2003; 2. Piasecki K., Ronka-Chmielowiec W., *Matematyka finansowa*, C. H. Beck, Warszawa 2011. 3. Błaszczyszyn B., Rolski T., *Podstawy matematyki ubezpieczeń na życie*, WNT 2004. 4. Hull J., *Kontrakty terminowe i opcje. Wprowadzenie*, WIG Press, Warszawa 1998. 5. Sobczyk M., Matematyka finansowa: podstawy teoretyczne, przykłady, zadania, Agencja Wydawnicza Placet, Warszawa 2011
eResources addresses	

Example issues/ example questions/ tasks being completed	
Work placement	Not applicable