GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	FINANCIAL ENGINEERING IN BUSINESS MANAGEMENT, PG_00058466		
Field of study	Economics		
Date of commencement of studies	October 2024	Academic year of realisation of subject	2026/2027
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	3	Language of instruction	Polish
Semester of study	5	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 inż. Ewa Mazurek-Krasodomska	
	Teachers		

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

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	10.0	35.0	75

Subject objectives

Uses derivative instruments to limit financial risk and carries out their valuation.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_K02] makes competent and ethical decisions to create and maintain the economic, social and environmental value	uses the results of analyzes to make decisions in order to create and maintain economic, social and environmental value	[SK5] Assessment of ability to solve problems that arise in practice
[K6_U05] designs innovative solutions to complex problems obtaining economic and socially valuable results	creates innovative solutions to the problems of valuation of derivative instruments	[SU4] Assessment of ability to use methods and tools

Subject contents

The essence and application of financial engineering.
Derivatives and their classification.
Valuation of forward contracts for assets.
Foreign exchange forward / futures.
Commodity Forward / Futures.
Valuation of FRA contracts.
Valuation and construction of foreign exchange swaps.
Valuation and construction of interest rate swap contracts.
Valuation of options using the binomial model.
Black-Scholes model in option pricing.
Greek coefficients.
Options' strategies and examples of their use.
Exotic derivatives and their use.
Strategies for investing in derivative instruments.
The effectiveness of hedging strategies.

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Additional activities	0.0%	10.0%
2 Colloquium	60.0%	80.0%
Theory test	50.0%	10.0%

Recommended reading	Basic literature	Hull, J. (1997).Kontrakty terminowe i opcyjne. Wprowadzenie. Warszawa: WIG Press. Hull, J. C.(2011). Zarządzanie ryzykiem instytucji finansowych. Warszawa: Wydawnictwo Naukowe PWN. Jajuga. K. (2015). Inwestycje: instrumenty finansowe, aktywa niefinansowe, ryzyko finansowe, inżynieria finansowa. Warszawa: Wydawnictwo Naukowe PWN. Jajuga, K. (red.). (2020). Zarządzanie ryzykiem . Warszawa: Wydawnictwo Naukowe PWN.
	Supplementary literature	Bartkowiak, M. (2014). Instrumenty pochodne. Wprowadzenie do inżynierii finansowej. Poznań: Wydawnictwo Uniwersytetu Ekonomicznego w Poznaniu. Pruchnicka-Grabias, I.(2012). Egzotyczne opcje finansowe. Systematyka, wycena, strategia. Warszawa: CeDeWu. Weron, A., Weron, R. (2019). Inżynieria finansowa. Wycena instrumentów pochodnych. Symulacje komputerowe. Statystyka rynku. Warszawa: Wydawnictwo Naukowo-Techniczne.
	eResources addresses	Adresy na platformie eNauczanie:
Example issues/ example questions/ tasks being completed	Binomial method. Black-Scholes formula.	
Work placement	Not applicable	