GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Financial Engineering, PG_00053152		
Field of study	Management, Management		
Date of commencement of studies	October 2023	Academic year of realisation of subject	2023/2024
Education level	second-cycle studies	Subject group	Optional subject group Subject group related to scientific research in the field of study
Mode of study	Part-time studies (on-line)	Mode of delivery	blended-learning
Year of study	1	Language of instruction	Polish
Semester of study	2	ECTS credits	3.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	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: 18.0

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	6.0	45.0	75

Subject objectives

uses advanced derivative instruments to reduce financial risk and conducts their valuation.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K7_U10] uses appropriate methods and techniques to support the decision-making process to solve problems occurring in livestock units	uses derivatives to reduce the company's financial risk	[SU4] Assessment of ability to use methods and tools
[K7_W08] has an in-depth knowledge of selected methods and techniques supporting economic decision-making processes	knows exotic and traditional derivatives	[SW1] Assessment of factual knowledge

Subject contents

The essence and application of financial engineering.
Valuation of forward/futures contracts on assets.
Valuation of FRA contracts.
Valuation and construction of currency and interest rate swap contracts.
Option valuation using the binomial model.
Black-Scholes model in option pricing: stocks without dividends, stocks generating dividends.Probability of price change.
Examples of exotic options and their use.
Option strategies - examples
Option strategies - risk and rate of return
Greek coefficients
Delta hedging
Effectiveness of hedging strategies.

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
colloquium	60.0%	80.0%
theory test	50.0%	10.0%
additional activities	0.0%	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: 23/24 N Inżynieria finansowa - Moodle ID: 37726 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=37726
Example issues/ example questions/ tasks being completed	Suggest the use of an exotic instrument to reduce the company's financial risk.	
Work placement	Not applicable	