GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Foundations of Capital Markets Analysis, PG_00048018
Field of study	Informatics

Date of commencement of studies	February 2023	Academic year of realisation of subject	2022/2023
Education level	second-cycle studies	Subject group	Obligatory subject group in the field of study Humanistic-social subject group
Mode of study	Full-time studies	Mode of delivery	at the university
Year of study	1	Language of instruction	Polish
Semester of study	1	ECTS credits	1.0
Learning profile	general academic profile	Assessment form	assessment

Conducting unit	Department of Marine Electronic Systems -> Faculty of Electronics, Telecommunications and Informatics

Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Marcin Gnyba
	Teachers	dr hab. inż. Marcin Gnyba dr inż. Paweł Jakóbczyk

Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	0.0	0.0	0.0	15
	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	15	2.0	8.0	25

Subject objectives	Students will posses some knowledge in the area of approximation theory for the analysis and comparison of quotation from financial markets, and construction of indicators for investment purposes.

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K7_W01] Knows and understands, to an increased extent, mathematics to the extent necessary to formulate and solve complex issues related to the field of study.	Student is capable of deriving trends in capital and FOREX markets. He understands basic principles of investing.	[SW1] Assessment of factual knowledge
	[K7_W42] Knows and understands, to an increased extent, the principles and trends in the analysis and design of local and distributed IT systems and the basics of computer modeling and computerization of complex cognitive and decision-making processes.	Student is capable of deriving trends in capital and FOREX markets. He understands basic principles of investing.	[SW1] Assessment of factual knowledge
	[K7_W04] Knows and understands, to an advanced extent, the principles, methods and techniques of programming and the principles of computer software development or programming devices or controllers using microprocessors or programmable elements or systems specific to the field of study, and organisation of systems using computers or such devices	Student is capable of deriving trends in capital and FOREX markets. He understands basic principles of investing.	[SU2] Assessment of ability to analyse information
	[K7_W43] Knows and understands, to an increased extent, the nformal, technical and social aspects of the operation of complex information systems in the information society and in the global information n infrastructure.	Student is capable of deriving trends in capital and FOREX markets. He understands basic principles of investing.	[SW1] Assessment of factual knowledge
	[K7_W41] Knows and understands, to an increased extent, the standards, production methods, life cycle and development trends of software as well as information systems and applications.	Student is capable of deriving trends in capital and FOREX markets. He understands basic principles of investing.	[SW1] Assessment of factual knowledge

Subject contents	
	1. Introduction to capital markets
	2. Return rate, effective return
	3. Classification of financial instruments
	4. Standard methods of market analysis
	5. Foundations of approximation theory
	6. Complete and incomplete system for vectors
	7. Scalar product, properties, interpretation
	8. Scalar product for signals, orthogonality
	9. Norms of error in linear space, properties
	10. Correlation and covariance coefficient, normalization in L2
	11. Approximation in L2 space
	12. Properties of solution in L2
	13. Fourier series in capital markets
	14. Autocorrelation function – acf and cross-correlation function – ccf
	15. Strategies of investing in capital marke

Prerequisites and co-requisites	
	No requirements

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Colloquium	51.0%	100.0%

Recommended reading	Basic literature	[1] any manual on numerical analysis
		[2] J.W. Tadion, „Deciphering the Market" WILEY 1996.
		[3] Manual for Matlab programming language
		[4] any manual on approximation theory
		[5] John, J. Murphy "Technical Analysis of Financial Markets", New York Institute of Finance, 1999

	Supplementary literature	No requirements
	eResources addresses	Adresy na platformie eNauczanie: Podstawy Analizy Rynków Kapitałowych - Moodle ID: 30194 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=30194
Example issues/ example questions/ tasks being completed	1. Fundamental Analysis of Markets 2. Technical Analysis of Markets	
Work placement	Not applicable	