# GDAŃSK UNIVERSITY OF TECHNOLOGY

## Subject card

| Subject name and code | Foundations of Capital Markets Analysis, PG_00047414 | | | | | |
|---|---|---|---|---|---|---|
| Field of study | Informatics | | | | | |
| Date of commencement of studies | October 2023 | | Academic year of realisation of subject | | 2023/2024 | |
| Education level | second-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 | 1 | | Language of instruction | | English | |
| Semester of study | 2 | | 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 | | | |

| 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. |
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| Learning outcomes | | Course outcome | Subject outcome | Method of verification |
|---|---|---|---|---|
| | | [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 |
| | | [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_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_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. | [SW1] Assessment of factual knowledge |

| Subject contents | 1. Introduction to capital markets<br>2. Return rate, effective return<br>3. Classification of financial instruments<br>4. Standard methods of market analysis<br>5. Foundations of approximation theory<br>6. Complete and incomplete system for vectors<br>7. Scalar product, properties, interpretation<br>8. Scalar product for signals, orthogonality<br>9. Norms of error in linear space, properties<br>10. Correlation and covariance coefficient, normalization in L2<br>11. Approximation in L2 space<br>12. Properties of solution in L2<br>13. Fourier series in capital markets<br>14. Autocorrelation function – acf and cross-correlation function – ccf<br>15. Strategies of investing in capital marke |
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| 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 |
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|  | eResources addresses | Adresy na platformie eNauczanie:<br><br>Foundations of Capital Market Analysis - Moodle ID: 37802<br>https://enauczanie.pg.edu.pl/moodle/course/view.php?id=37802 |
| Example issues/<br>example questions/<br>tasks being completed | 1. Fundamental Analysis of Markets<br><br>2. Technical Analysis of Markets | |
| Work placement | Not applicable | |