COURSE DESCRIPTION CARD - SYLLABUS

Course name
Financial markets analysis [N2Inf1-ZTI>ARF]

Course

Field of study
Computing

Year/Semester
2/4

Area of study (specialization)
Advanced Internet Technologies

Profile of study
general academic

Level of study
second-cycle

Course offered in
Polish

Form of study
part-time

Requirements
elective

Number of hours

Lecture
16

Laboratory classes
0

Other
0

Tutorials
12

Projects/seminars
0

Number of credit points

3,00

Coordinators

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Lecturers

Prerequisites

A student starting this subject should have basic knowledge and skills in solving basic algorithmic problems, optimizing program code, obtaining information from indicated sources. He should also understand the need to expand his skills and represent an open attitude towards the diverse interests and goals of capital market participants. In terms of social competence, the student must present such attitudes as honesty, responsibility, perseverance, cognitive curiosity, creativity, personal culture, respect for other people.

Course objective

1. To provide students with basic knowledge of the global capital market, factors affecting exchange rate fluctuations and other instruments listed on stock exchanges. To understand the specifics and nature of derivatives (including contracts and options). To become familiar with various techniques for the presentation of exchange rate volatility and chart analysis with their advantages and disadvantages. To understand and recognize the basic candlestick formations on rate charts. 2. To develop in students the ability to draw and observe charts of quotations of financial instruments. Defining the decision rules (buying and selling conditions) that make up an investment system. Understanding and measuring investment risk and learning about mechanisms for mitigating or reducing risk and methods of managing an investment portfolio. 3. Learning the MQL programming language. Optimization of the indicated investment strategies. Implementation of automatic CFD trading systems. 4. During the semester implementation work, students are first engaged in the analysis and optimization of the investment strategy provided by the instructor, and in the second part of the semester they construct their own strategy. 5. In addition, students during classes at the university and as part of independent work at home conduct their own investment game (duration min. 1 month) implemented in demo mode, during which the task is to multiply the value of the investment portfolio. Participants in the game have the opportunity to invest funds in CFDs using the full range of investment opportunities offered by brokers operating in the forex market.

Course-related learning outcomes

Knowledge:
As a result of active participation in lectures, the student:
1. knows the basic concepts of economics relating to equity investments such as return on investment, financial risk, income vs. profit, profit vs. cash flow. Has a structured, theoretically underpinned general knowledge in the following areas: knowledge of available investment instruments offered to forex market participants, methods of technical analysis of candlestick charts, knowledge of popular indicators of technical analysis, identification of so-called candlestick formations, and definition of trading systems by determining the conditions for opening and closing a position in the market.
2. has theoretically grounded knowledge related to selected issues in the field of conducting the investment process based on automatic strategies coded in the MQL language, and knows the principles of their testing and evaluation of investment risk on the basis of the so-called back-tests.
3. has knowledge of development trends and the most significant new developments in computer science and economics related to the delivery of value through services, including social trading.

Skills:
As a result of the material, the student will be able to select and prepare/configure the necessary investor environment for work. In addition, the syudent will know the safety rules related to work in the context of constructing automated investment strategies.

Social competences:
As a result of the course, the student will acquire the competencies listed below. Passing the course means that the student: is able to think and act in an entrepreneurial manner and use a variety of information sources to plan activities.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Formative assessment:
(a) in terms of lectures: on the basis of participation in discussions and answers to questions on the material discussed in lectures,
b) in terms of exercises: on the basis of evaluation of the current progress of conceptual, implementation and optimization tasks.
Summative assessment:
a) in terms of lectures, verification of the established learning outcomes is realized by:
- evaluation of the knowledge and skills and innovation contained in the work carried out individually in the laboratories and in the form of homework. The task carried out as part of homework can be in the form of an essay (written work) of about 10 pages. The topics of written work are related to or are an extension of the issues covered in lectures. It is also an opportunity for extended literature studies.
- A test of knowledge of investment instruments, candlestick formations and indicators of technical analysis is possible. The test will be used in case of low value (or reproductive nature) of solutions

developed during the laboratory tasks.
b) in terms of the laboratory, verification of the established learning outcomes is carried out by:
- assessment of knowledge and skills related to the subject matter in the form of project tasks consisting of: participation in a stock market game in demo mode, during which students demonstrate their understanding and ability to apply multiple investment techniques.
- evaluation and "defense" by students of a report (may be in the form of a presentation) on the implementation of the tasks of optimization of selected investment strategies for selected investment instruments.
- Evaluation of the presentation of their own investment strategy.
Earning extra points for activity during classes, and especially for comments related to the improvement of teaching materials. Students can also additionally increase their grade by proposing interesting issues worth discussing during lectures or preparing a short presentation that is an expansion or supplement to the proposed topic.

Programme content

The lecture program includes, among others, the following topics:
* FOREX market, Derivatives: futures contracts, options.
* Technical analysis of stock market quotations, candlestick formations.
* Elements of technical and fundamental analysis, relevant indicators, messages.
* Fibonacci proportions and their application in stock market quotation analysis and investment planning.
* Selected investment strategies, optimization of strategies.
* Investment strategy programming language: MetaQuotes, MQL
* Earning from knowledge: social trading, construction of automatic strategies, stock market competitions, etc.
The laboratory is conducted in the form of eight meetings of 2 didactic hours each (last only 1h), held in the laboratory. During the classes, with reference to the topics of the lectures held, there is a presentation of the MetaTrader trading platform and a discussion of the principles of conducting investments in the capital market. Students complete assignments individually during class and as part of homework consisting in a stock market game conducted on a demo account, in which the task is to multiply capital by opening and closing positions on the CFD market. In addition, students are given the task of optimizing investment strategies prepared by the class instructor and constructing their own automatic forex trading strategy implemented in the MQL language.
A part of the above-mentioned program content is implemented as part of the student's own work.

Course topics

none

Teaching methods

1. Lecture: multimedia presentations and demonstration of selected software packages (including MetaTrader).
2. Laboratory: analysis of price volatility charts, conceptual design and implementation of investment strategies; optimization and improvement of automatic trading strategies, running an investment account in demo mode - multiplying capital. Programming automatic trading strategies in the MQL language.

Bibliography

Basic:
1. Zenon Komar, Sztuka Spekulacji po latach (tom I i II), Wydawnictwo Linia, 2011.
2. Mark Galant, Brian Dolan, FOREX dla bystrzaków, Wydawnictwo Helion 2012
3. Joe DiNapoli, Poziomy DiNapolego. Praktyczne zastosowanie analizy Fibonacciego na rynkach inwestycyjnych, Wydawnictwo WIG-Press 2004
4. Zbigniew Dobosiewicz, Giełda : zasady działania, inwestorzy, rynki giełdowe, Polskie Wydawnictwo Ekonomiczne, 2013
5. Thomas Bulkowski, Analiza formacji na wykresach giełdowych, Wydawn. Linia, 2011

Additional:

1. Benjamin Graham, Inteligentny inwestor, Wydawnictwo Studio EMKA, 2007
2. Charles Vintcent, Spekulacja i inwestowanie długoterminowe - Zwycięskie strategie osiągania zysku z transakcji i wzrostu kapitału, Wydawnictwo Liber, 2000
3. Thomas Bulkowski, Spekulacja wahadłowa i transakcje jednodniowe, Wydawn. Linia, 2016

Breakdown of average student's workload

	Hours	ECTS
Total workload	75	3,00
Classes requiring direct contact with the teacher	28	1,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	47	2,00