

Tárgyleírás

Tárgy neve: FinTech Lab I-II

Tárgyfelelős neve: Molnár Bálint, egyetemi docens, tudományos főmunkatárs

Tárgyfelelős tudományos fokozata: Ph.D., doctor habil.

Tárgyfelelős MAB szerinti akkreditációs státusza: AT

Az oktatás célja angolul / Aim of the subject:

Knowledge

- Knowledge of the principles of financial, business and enterprise processes within enterprises, and the relationships.
- Detailed and expert-level knowledge of the technical terms and expressions of computer science, and corporate finance in English.

Abilities (Competencies)

- Ability to develop documentation that is in compliance with the requirements of enterprises.
- Ability to formalize complex problems to analyze the theoretical and practical background, and provide adequate solutions.
- Expertise in the domain of Financial issues of Enterprises.
- Skills for cooperation and teamwork, and ability to take a leading role.
- Ability for written and oral communication in English, using the technical terms and expressions of computer science. Ability to argue, prepare reports, read, understand and exploit scientific and technical material (e.g. books and papers).
- Expertise in using sources of scientific, technical, and management information, their critical interpretation and evaluation, and the extraction of information relevant to the solution of a specific problem.
- Ability to perform supervised scientific research, and have skills required for post-graduate studies.

Attitude

- Pays attention to professional, management, and technology development related to her/his qualification.
- Commitment to self-assessment and to critical feedback based on self-assessment.
- Commitment to lifelong learning and receptivity to new IT competencies.
- Adopts and complies with the ethical principles of work, organizational culture, and research, and gets his/her colleagues to comply with it.
- Shares and communicates her/his professional knowledge, and professional results.
- Demonstrates and implements eco-conscious behavior and social responsibility, helping them with IT tools.
- Commitment to quality standards and its IT tools.
- Open to initiating collaboration with IT and other specialists.

Autonomy and responsibility

- Takes responsibility for his professional decisions made during his professional activities.
- Takes responsibility for observing and enforcing deadlines.
- Takes responsibility for own and fellow workers' work.
- In the case of mission-critical IT systems, he/she can be assigned responsibility for operation and management, according to his/her professional competencies.

Az oktatás tartalma angolul / Major topics:

The main goal of this labor practice for two semesters is to introduce students to the programming and programming methods of Financial Informatics. In the first semester, the students acquire the basic knowledge of development environments, and the programming languages relevant to the subject domain. The first semester will be concluded by the submission of the results of a project. In the second semester, the project is commenced that offers the opportunity to lay the foundation of the MSc dissertation.

Syllabus

1. Fintech Lab I:
2. Computational Finance along with the application of MatLab services.
 - a. Familiarity with computation, visualization and programming integrated in MATLAB easy to use environment. (Live Editor, financial, statistical, risk and financial instruments toolboxes, code/report/add-in generation, etc.)
 - b. A thorough understanding of MATLAB's powerful features is needed to perform mathematical and statistical analysis of financial data, and practical expertise in applying MATLAB for solving real-world problems and displaying the results with presentation-quality graphics.
 - c. Building MATLAB financial or risk model, coordinating or conducting financial, product, market, operational and related research to support strategic and business planning within the organization and programs of client groups, planning and coordinating the development of primary and secondary market research studies in support of strategic planning and specific marketing initiatives, as required and presents findings
3. Fintech Lab II.
4. Projects, assignments on challenges that emerge at banks, insurance companies, brokerage, and other financial institutions:
 - a. Risk Management
 - b. Fraud Detection
 - c. AI-based Trading
 - d. Robo-Advisory
 - e. Insurance Underwriting and Claims
 - f. Conversational Banking and Customer Service (Chatbots, Intelligent Assistant)

- g. Cryptocurrencies
- h. - Blockchain technology in financial transactions

A számonkérés és értékelés rendszere angolul / Requirements and evaluation:

Type of examinations: practice grade

Specific assessment and examination solutions for testing the knowledge of students:

Assessment of the assignments during the semester: application development, problem-solving using Mat Lab, Python, and other software environment.

Irodalom / Literature:

1. PHILIPPE JORION GARP: Financial Risk Manager Handbook
 2. Silverston, Len. *The data model resource book, Volume 1: A library of universal data models for all enterprises*. John Wiley & Sons, 2011.
 3. Silverston, Len. *The Data Model Resource Book, Vol. 2: A Library of Data Models for Specific Industries*. Wiley Publishing, 2001.
 4. Alt, Rainer, and Thomas Puschmann. "Digitalisierung der Finanzindustrie." *Grundlagen der Fintech-Evolution, Berlin, Heidelberg* (2016).
 5. Kovalerchuk, Boris, and Evgenii Vityaev. *Data mining in finance: advances in relational and hybrid methods*. Vol. 547. Springer Science & Business Media, 2006.
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