

Tárgyleírás

Tárgy neve: Development of Financial IT Systems Pr.

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

- The student has a complex and up-to-date knowledge of information systems in the financial and banking environment.
- Have knowledge of financial development
- Have a high level of detailed knowledge and understanding of the professional vocabulary, expression and terminology of the IT field in English.

Abilities:

- Ability to apply the principles and methods of information systems analysis and design methodologies professionally. Ability to prepare information system designs and documentation that meet real business and organizational requirements.
- Ability to formalize professional problems related to financial information systems, identify the necessary theoretical and practical background, and solve the problem.
- Ability to collaborate, analyze, design, develop, and implement projects/groups/work proactively.
- Ability to express oneself in written and oral English, participate in discussions, prepare reports, process, and use scientific and technical professional material (books, articles, etc.) in a creative way, using a high level of professional vocabulary in the field.
- The ability to use professional sources of information, to extract, interpret critically, and evaluate the knowledge needed to solve a problem.
- Ability to carry out independent scientific research under professional guidance and to prepare for further studies in postgraduate studies.

Attitude:

- Monitor professional and technological developments related to his/her qualifications and IT skills.
- Committed to critical feedback and evaluation based on self-reflection.
- Committed to lifelong learning, open to learning new IT professional competencies.
- Accepts and enforces with colleagues the ethical principles of work and organizational culture and of scientific research in information technology.
- He/she shares his/her own knowledge and attaches importance to the communication of IT professional achievements.

- He/she attaches importance to the communication and implementation of environmental and social responsibility and promotes this with IT tools.
- It is committed to enforcing quality standards and analyzing them using IT tools.
- It is open to pro-active cooperation with professionals in IT and other fields.

Autonomy, responsibility:

- Takes responsibility for the 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 course is about system development that is dedicated to finance, banking, and related areas.

1. Introduction to IT systems and their design methods for banks, finance
 - 1.2. IT architectures in banks.
2. Modelling Business Processes in banks, financial institutions
 - 2.1. An overview of the operation of financial IT systems through the business processes (cash flow, money transfer within banks and between banks, international money transfers, etc.).
 - 2.2. Other payment methods: money orders, credit card, mobile payment, micro-payment, mobile wallet, etc.
 - 2.3. Design of a mobile payment system.
 - 2.4. Design of a Micropayment system
3. Cryptocurrency (Bitcoin, Ethereum, Hyperledger, stb) and Blockchain.
 - 3.1. Design of a system for finance based on Cryptocurrencies
4. Credit, Loan management
 - 4.1. Crowd financing and P2P lending
5. API-s in banks, PSD2
 - 5.1. Testing API-s in banks, with the assistance of Web services.
 - 5.2. Development of an IT application using one of the APIs in banks.
6. An overview of SAP Financials

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 presentation and summary of the dedicated chapter, paper

Written exam on the theory of development information systems for finance:

Essay questions, multiple-choice, multiple answers.

Continuous progress checking during the semester through quizzes on the subject.

Assignments for problem-solving and development in the practice class.

Irodalom / Literature:

Literature, mandatory

1. Jim Bird (2015). *DevOps for Finance*. O'Reilly Media.
2. Ton Tapscott, Alex Tapscott. (2016). *Blockchain Revolution: How the Technology Behind Bitcoin Is Changing Money, Business, and the World*, Portfolio
3. August-Wilhelm Scheer, (1994), Business Process Engineering Study Edition: Reference Models for Industrial Enterprises, Springer-Verlag, 1994
4. Magal, S. R., & Word, J. (2011). *Integrated business processes with ERP systems*. Wiley Publishing.
5. Alt, Rainer, and Thomas Puschmann. "Digitalisierung der Finanzindustrie." *Grundlagen der Fintech-Evolution, Berlin, Heidelberg* (2016).

Proposed further reading:

1. Harihara Subramanian, Pethuru Raj (2019): *Hands-On RESTful API Design Patterns and Best Practices*, Packt Publishing
 2. Paul Justin, Suresh Padmalatha (2017): *Management of Banking and Financial Services*, 4th Edition, Pearson
 3. Mike Barlow: *Evolving Architectures of FinTech*, O'Reilly Media
 4. Paolo Sironi (2016): *FinTech Innovation*, John Wiley & Sons
 5. Cornelia Lévy-Bencheton (2016): *Data Science, Banking, and Fintech*, O'Reilly Media
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