Tárgy neve: Development of Financial IT Systems

Tárgyfelelős neve: Molnár Bálint

Tárgyfelelős tudományos fokozata: PhD, egyetemi docens

Tárgyfelelős MAB szerinti akkreditációs státusza: AT

Az oktatás célja angolul:

a) knowledge

- In order to be able to perform their work in an innovative way and do research (when necessary) in their own IT specialization, they have comprehensive and up-to-date knowledge of general mathematical and computing principles, rules and relationships, particularly – depending on their chosen specialization – in the following areas: algebraic, linear algebraic and number theory methods and applications, special fields of mathematical analysis, numerical methods and their applications; discrete mathematics, graph theory, logic and their applications; theoretical basics and applications of stochastic modelling and statistics; first-order and second-order statistical analysis, operation research; algorithmic methods in mathematics, formal models and tools in computing science, complexity and efficiency theory of algorithms, and special algorithms of application fields.
- They are familiar with the principles of business, organizational and corporate procedure, information, data, software and technical-technological architectures as well as with the methods of describing and designing these architectures.
- They have a high level of fluency in the language of IT – including its professional vocabulary and its characteristic features of expression and composition – both in their mother tongue and in English, at least.

b) skills and abilities

- They are able to formalize complex IT tasks, to identify and study their theoretical and practical background and then to solve them.
- They are able to perform design, development, operation, and management tasks when operating complex software systems, database management systems, corporate information systems, decision support systems, and expert systems
- They are able to comprehensively understand, plan, organize, manage and control processes related to their IT specialization at management level.
- They are able to initiate collaboration and work in a team as well as on projects with IT or other professionals.
- They are able to analyze and apply new problem-solving methods and procedures related to their IT specialization.
- They are able to apply their IT skills in a diverse, multidisciplinary professional environment.
- They are familiar with IT professional vocabulary, which enables them to express themselves at a high level, both orally and in writing, in their mother tongue and (at least) in English; i.e. they are able to participate in discussions and debates, to write reports, to work with, understand and utilize scientific and technical literature (e.g. professional books, chapters, articles etc.).
- They are able to professionally use scientific and technical information sources to obtain knowledge necessary for solving a problem, and to critically interpret and evaluate it.
- Under professional guidance, they are able to carry out scientific research on their own, and to prepare for further studies at postgraduate level.

c) attitude

- They follow professional and technological developments in their IT field.
- They are committed to critical feedback and evaluation based on self-examination.

- They are committed to lifelong learning and are open to acquiring new IT competencies.
- They accept and make their co-workers apply the ethical principles of work and organizational culture as well as those of IT scientific research.
- They share their knowledge and consider it important to disseminate professional IT results.
- They consider it important to propagate and realize environmentally conscious behavior and social responsibility, and they promote them with the help of information technology.
- They are committed to having quality requirements met and to analyzing them with IT tools.
- They are open to proactive collaboration with IT and other professionals.

d) autonomy and responsibility

- They take responsibility for their professional decisions made in their IT-related activities.
- They undertake to meet deadlines and to have deadlines met.
- They bear responsibility for their own work as well as for the work of their colleagues they work together with in a project.
- Regarding mission critical IT systems, they can be entrusted with developing and operational responsibilities that are in accordance with their professional competencies.

Az oktatás tartalma angolul:

The course is about the system development that are dedicated to finance, banking and related areas.

1. Introduction to IT systems and their design methods of 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 (cashflow, money transfer
   within bank 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, by the assistance of Web services.
   5.2. Development of an IT application using one of the APIs in banks.
6. An overview about SAP Financials

A számonkérés és értékelés rendszere angolul:

continuous assessment, practical course mark and examination;
assessment of the presentation and summary of the dedicated chapter, paper;
written exam on the theory of development information systems for finance.

Idegen nyelven történő indítás esetén az adott idegen nyelvű irodalom:

Text book, compulsory:

- Jim Bird (2015). DevOps for Finance. O'Reilly Media.
- Ton Tapscott, Alex Tapscott. (2016). Blockchain Revolution: How the Technology Behind Bitcoin Is Changing Money, Business, and the World, Portfolio
- August-Wilhelm Scheer, (1994), Business Process Engineering Study Edition: Reference Models for Industrial Enterprises, Springer-Verlag ,1994
- Magal, S. R., & Word, J. (2011). Integrated business processes with ERP systems. Wiley Publishing.
  5. Mike Barlow: Evolving Architectures of FinTech, O'Reilly Media