

(1.) Course Title: INFPHD439 Enterprise Architecture and modelling of Business Processes	Credits: 6
Course Classification: Optional	
Theoretical or Practical Nature of the Course, 'training character'¹³: theory-practice ratio 100% (credit%)	
Type of Class: lecture and number of hours: 2/week in the given semester, (If the course is not (only) taught in Hungarian, then the language: English) Additional (specific) methods and characteristics² used in delivering the knowledge (if any): -	
Assessment Method (Exam / Midterm Grade / Other³): colloquium Additional (specific) methods⁴ applied in knowledge assessment (if any): continuous assessment, giving short lectures based on literature review	
Course Placement in Curriculum (Semester Number): -	
Prerequisites (if any): -	
Course Description: A concise yet informative description of the knowledge to be acquired.	
1. Enterprise Architecture theories: a. Zachman, TOGAF, etc. 2. Business Process Management and Modelling a. Concept of Business Process; b. Business Process Modelling methods i. Event-driven Process Chain (EPC); ii. Soft System Methodology; iii. BPR (Business Process Re-engineering); iv. BPM /BPMN (Business Process Modelling / Notation); v. Formal methods: <i>Process algebra, pi-algebra, Petri nets</i> c. Workflow modelling and management; d. Semantics of Business Processes and its modelling methods; 3. From Software Architectures to Enterprise Architecture. a. Web technologies, Web Services, Service-oriented Architecture; b. Formal methods: <i>story algebra, business artefacts, document-centric modelling</i>. 4. Blockchain Architecture patterns 5. AI/ML application in Business Processes and Distributed Applications (DApps) 6. Cloud Computing: a. Relationship between Web Information Systems, SOA and Cloud Computing; b. Business Process Modelling methods in a Cloud Computing environment. i. SaaS ii. SaaSP iii. SaaSI	
2-5 Most Important Required and Recommended Literature List of required and recommended literature (notes, textbooks) with bibliographic data (author, title, publication details, (possibly pages), ISBN).	

- Kumar, R.L. 2021. *Internet of Things, Artificial Intelligence and Blockchain Technology*. Springer International Publishing AG.
- Xu, X., Weber, I. and Staples, M. 2019. *Architecture for Blockchain Applications*. Springer International Publishing.
- Natarajan, P., Rogers, B., Dixon, E., Christensen, J., Borne, K., Wilkinson, L. and Mohan, S. 2021. *Demystifying AI for the Enterprise: A Playbook for Business Value and Digital Transformation*. Productivity Press.
- Daniel Minoli, Enterprise Architecture A to Z Frameworks, Business Process Modeling, SOA, and Infrastructure Technology, Auerbach Publications, Taylor & Francis Group, ISBN 978-0-8493-8517-9, 2008
- Marc Lankhorst et al., Enterprise Architecture at Work, 2005, Springer-Verlag Berlin Heidelberg, ISBN-10 3-540-24371-2
- Portugal 2006, Victor Portugal and David Sundaram , Business processes : operational solutions for SAP implementation, 2006, Idea Group Inc., ISBN 1-59140-615-3
- Mathias Weske, Business Process Management, Concepts, Languages, Architectures, © Springer-Verlag Berlin Heidelberg 2007, ISBN 978-3-540-73521-2 ,
- Simha R. Magal (Grand Valley State University), Jeffrey Word (SAP), Essentials of Business Processes and Information Systems, ISBN 978-0-470-23059-6, Wiley , 2010

List of Prescribed Professional Competencies and Competency Elements

(knowledge, skills, etc., KKK Section 8) that the course significantly contributes to developing (highlight the most important ones).

a) Knowledge

- Has a research-level understanding of the general and specific characteristics, major directions, and precisely developed boundaries of the subject area within the discipline, as well as the agreed and debated interrelations.
- Creatively comprehends the interrelations, theories, and conceptual frameworks and terminologies of the given field of study.¹
- Possesses research methodology knowledge necessary for independent research in the given discipline/field.

b) Skills

- Capable of creative analysis of the field, synthesizing comprehensive and specific interrelations with a new perspective, and conducting appropriate evaluative and critical activities.
- Able to apply and further develop the specialized learning and problem-solving methods of the field.
- Can creatively elaborate on the novel, previously unknown practical implications of theoretical issues.
- Capable of planning and executing new projects, conducting research in the field, and developing new techniques and approaches.

¹**Section 108**, Article 37 of the National Curriculum Act (Nftv.) 37. lesson: a session (lecture, seminar, exercise, consultation) requiring the personal involvement of the instructor to fulfil the academic requirements specified in the curriculum, the duration of which is at least forty-five minutes and not more than sixty minutes.

² e.g. case studies, role play, thematic presentations, etc.

³ e.g. continuous debriefing, mid-year report

⁴ e.g. request for case studies, thematic papers, essays, business, organisational plans, etc.

- Able to identify unforeseen professional problems and uncover the detailed theoretical and practical background necessary for their resolution at a research level.
- Can construct and communicate new relations relevant to the field, as well as comprehensive interrelations significant for personal and communal existence.

c) Attitudes

- Represents and further develops the relations that contribute to the process of human self-creation based on the field's characteristics.
- Possesses an interest and learning ability that enable identifying and solving currently unpredictable research problems in the field.
- Demonstrates a firm professional commitment, a continuous dedication to exploring new approaches, and an acceptance of the necessity for persistent effort.

d) Autonomy and Responsibility

- Builds and initiates new knowledge areas with creative independence and proposes new practical solutions.
- Participates in formulating theoretical and practical questions with a leadership role and high-level cooperation.
- Engages as an equal discussion partner with professionals in the field.
- Takes responsibility for raising and addressing new ethical questions concerning theoretical and practical aspects of the profession.

Course responsible (name, position, academic degree): **Dr. Bálint Molnár, Associate Professor, PhD**

Instructor(s) involved in teaching the course (if any) (name, position, academic degree):
Dr. Khawla Bouafia, Assistant Professor