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Establishing Modern Master-level Studies in Information Systems
561592-EPP-1-2015-1- FR-EPPKA2-CBHE-JP

WP2
Curriculum development
(Course with additions)

Tabl. 1**List of Competences**

Competences Area	Competences
Systems Development and Deployment	1. Managing plan-based, hybrid, and agile development approaches
	2. Specifying and documenting systems requirements
	3. Managing IS development projects
Data, Information and Content Management	4. Selecting appropriate data management technologies based on the needs of the domain
	5. Integrating and preparing data captured from various sources for analytical use
	6. Selecting and using appropriate analytics methods
Innovation, Organizational Change and Entrepreneurship	7. Developing a business plan
	8. Understanding how to apply creative problem solving to technology-related issues
IS Strategy and Governance	9. Engaging in IS strategic planning
	10. Planning and implementing IS governance
Enterprise Architecture	11. Understanding enterprise architecture principles and the value it provides to business
	12. Communicating and deploying an EA
Business Continuity and Information Assurance	13. Implementing and managing quality audit processes
	14. Managing Information Systems risks
IS Management and Operations	15. Managing IS/IT projects and programs
IT Infrastructure	16. Monitoring emerging technologies to understand their potential to support the domain

Tabl. 2

List of Programme Learning Outcomes

No	Professional Learning Outcomes	P
1.	to understand essential concepts, facts, principles, and theories of information system	P1
2.	to understand the diversity and state-of-the-art in area of information system	P2
3.	to be able to analyse, model, and evaluate organization's business processes from the perspective of information systems development	P3
4.	to be able to apply various methods of information systems analysis	P4
5.	to understand problems of users of information systems, to be able to identify, analyse and specify user requirements	P5
6.	to be able to manage information systems development projects and identify, analyse, evaluate, and solve the arising management problems	P6
7.	to be able to identify, analyse, and understand unorthodox problems of information systems development	P7
8.	to be able to apply various methods of information systems design	P8
9.	to be able to apply methods of knowledge, metadata analysis and information safety engineering	P9
10.	to be able to identify, find and evaluate information relevant to information systems by using data bases and other sources of information	P10
11.	to be able to apply various computerized tools for model driven information systems analysis and design	P11
12.	to be able to choose and apply various technologies of information systems' development	P12
13.	to be able to apply various tools for management of information systems projects	P13
14.	to be able to develop innovative decisions for IT business creation and support	P14
Personal and Social Learning Outcomes		
15.	to be able to think systematically when analysing different situations, solving problems and tasks	PS1
16.	to be able to apply the acquired knowledge creatively	PS2
17.	to be able to work individually with minimum guidance, manage one's work and time	PS3
18.	to be able to work efficiently in a group, manage the team, and act collectively	PS4
19.	to be able to understand the impact of information systems solutions on the society and environment and their economic aspects	PS5

Tabl.3

Correlation matrix of Competences and Programme Learning Outcomes

Competencies/ Learning Outcomes	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14	PS1	PS2	PS3	PS4	PS5
1. Managing plan-based, hybrid, and agile development approaches	x	x						x		x	x	x	x	x	x	x	x	x	x
2. Specifying and documenting systems requirements	x	x			x					x					x	x	x	x	x
3. Managing IS development projects					x			x		x	x	x	x		x	x	x	x	x
4. Selecting appropriate data management technologies based on the needs of the domain	x	x							x	x	x	x			x	x	x	x	x
5. Integrating and preparing data captured from various sources for analytical use	x	x							x	x	x	x			x	x	x	x	x
6. Selecting and using appropriate analytics methods	x	x	x				x		x	x	x				x	x	x	x	x
7. Developing a business plan	x	x					x			x	x			x	x	x	x	x	x
8. Understanding how to apply creative problem solving to technology-related issues	x	x					x			x	x			x	x	x	x	x	x

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Competencies/ Learning Outcomes	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14	PS1	PS2	PS3	PS4	PS5
9.Engaging in IS strategic planning	x	x	x			x				x	x			x	x	x	x	x	x
10. Planning and implementing IS governance	x	x				x				x	x		x	x	x	x	x	x	x
11. Understanding enterprise architecture principles and the value it provides to business	x		x	x						x					x	x	x	x	x
12. Communicating and deploying an EA	x		x							x	x				x	x	x	x	x
13. Implementing and managing quality audit processes	x		x	x			x		x	x					x	x	x	x	x
14. Managing Information Systems risks	x		x	x		x	x		x	x	x				x	x	x	x	x
15. Managing IS/IT projects and programs	x				x	x				x	x	x	x		x	x	x	x	x
16. Monitoring emerging technologies to understand their potential to support the domain	x			x			x			x					x	x	x	x	x

Tabl.4

Correlation matrix of Programme Learning Outcomes and Courses

Programme Learning Outcomes	Courses							
	IS Development and Deployment	MIS and Data Warehousing	Enterprise Architecture Management	Management of IS Projects	Enterprise Architecture Management	IS Strategy	IT Infrastructure	Innovations and Entrepreneurship
1	2	3	4	5	6	7	8	9
to understand essential concepts, facts, principles, and theories of information system				x				
to understand the diversity and state-of-the-art in area of information system								
to be able to analyse, model, and evaluate organization's business processes from the perspective of information systems development				x				
to be able to apply various methods of information systems analysis								

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1	2	3	4	5	6	7	8	9
to understand problems of users of information systems, to be able to identify, analyse and specify user requirements				x				
to be able to manage information systems development projects and identify, analyse, evaluate, and solve the arising management problems				x				
to be able to identify, analyse, and understand unorthodox problems of information systems development								
to be able to apply various methods of information systems design				x				
to be able to apply methods of knowledge, metadata analysis and information safety engineering								

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1	2	3	4	5	6	7	8	9
to be able to identify, find and evaluate information relevant to information systems by using data bases and other sources of information				x				
to be able to apply various computerized tools for model driven information systems analysis and design				x				
to be able to choose and apply various technologies of information systems' development								
to be able to apply various tools for management of information systems projects				x				
to be able to develop innovative decisions for IT business creation and support								

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1	2	3	4	5	6	7	8	9
to be able to think systematically when analysing different situations, solving problems and tasks				x				
to be able to apply the acquired knowledge creatively				x				
to be able to work individually with minimum guidance, manage one's work and time				x				
to be able to work efficiently in a group, manage the team, and act collectively				x				
to be able to understand the impact of information systems solutions on the society and environment and their economic aspects				x				

Course Descriptors

Course title:	Management of IS Projects
Course unit code	ISMP
Course Program:	MPIS
University delivering the course:	KhNUE
Type of course unit	Core course
Level of course unit	Masters level
Number of ECTS credits allocated	5 Credits (150 hours of student work)
Mode of delivery	lectures, workshop, team work, business games, independent work, distance learning

Module Structure:

No	Type	Course	CP (h)	Presence (h)	Self-Study (h)
1	Course	Management of IS Projects	150	40	110

Relevant Work:

Number and Type; Connection to Course	Duration	Part of final mark in %
Final Written Exam	120 min.	60 %
4 Exercises, case study with presentation	Each 10 pages + 20 min. presentation	40 %

Tabl.5

List of Course Learning Outcome(Management of IS Projects (ISPM))

Code of Learning Outcomes	Course Learning Outcomes
ISPM1	to understand and determine of the basic PM principles and Methodology, Project Life Cycle, Manager's responsibilities
ISPM2	to understand, identify and compose systems requirements and present their for users
ISPM3	to be able to develop project plans and ensure their implementation
ISPM4	to be able to identify, analyse, estimate and manage risks
ISPM5	to be able to effectively use design methodologies and tools
ISPM6	to be able to organize teamworking
ISPM7	to be able to argue, justify and present their decision and plans
ISPM8	to be able to make decision and take responsibility for them

Tabl.6

**Correlation matrix of Programme Learning Outcomes and Management of IS Projects (ISPM)
 Course Learning Outcomes**

Programme Learning Outcomes	Course Learning Outcomes	Code
1	2	3
to understand essential concepts, facts, principles, and theories of information system	to understand and determine of the basic PM principles and Methodology, Project Life Cycle, Manager’s responsibilities	ISPM1
to be able to analyse, model, and evaluate organization's business processes from the perspective of information systems development	to understand, identify and compose systems requirements and present their for users	ISPM2
to understand problems of users of information systems, to be able to identify, analyse and specify user requirements	to understand, identify and compose systems requirements and present their for users	ISPM2
to be able to manage information systems development projects and identify, analyse, evaluate, and solve the arising management problems	to be able to develop project plans and ensure their implementation	ISPM3
	to be able to identify, analyse, estimate and manage risks	ISPM4
to be able to apply various methods of information systems design	to be able to effectively use design methodologies and tools	ISPM5
to be able to identify, find and evaluate information relevant to information systems by using data bases and other sources of information	to understand and determine of the basic PM principles and Methodology, Project Life Cycle, Manager’s responsibilities	ISPM1
to be able to apply various computerized tools for model driven information systems analysis and design	to be able to effectively use design methodologies and tools	ISPM5
to be able to apply various tools for management of information systems projects	to understand and determine of the basic PM principles and Methodology, Project Life Cycle, Manager’s responsibilities	ISPM1
	To be able to organize teamworking	ISPM6

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1	2	3
to be able to think systematically when analysing different situations, solving problems and tasks	to be able to argue, justify and present their decision and plans	ISPM7
to be able to apply the acquired knowledge creatively	to be able to argue, justify and present their decision and plans	ISPM7
	to be able to make decision and take responsibility for them	ISPM8
to be able to work individually with minimum guidance, manage one's work and time	to be able to make decision and take responsibility for them decision and take responsibility for them	ISPM8
to be able to work efficiently in a group, manage the team, and act collectively	to be able to make decision and take responsibility for them	ISPM8
	to be able to argue, justify and present their decision and plans	ISPM7
to be able to understand the impact of information systems solutions on the society and environment and their economic aspects	to be able to argue, justify and present their decision and plans	ISPM7

Tabl.7

Management of IS Projects Learning Outcomes

Themes	Theoretical component	Practical component	Learning Objectives	Learning Outcomes	
				Professional	Personal & Social
MODULE 1. Traditional project management methodology					
1	2	3	4	5	6
Topic 1. Basic Project Management	<i>The main sub-topic:</i> 1.1. The essence of the project and project management 1.2. Project life cycle 1.3. Project Management Standards 1.4. Project manager: roles and responsibilities	Using Mind Map as a tool for understanding the concept of project management	To learn the definition and major concepts of the basic principles PM, Project Life Cycle, Manager's responsibilities	ISPM1_ to understand and determine of the basic PM principles and Methodology, Project Life Cycle, Manager's responsibilities	ISPM7, ISPM8
Topic 2. Management process	<i>The main sub-topic:</i> 2.1. Project Launch (Initiation) 2.2. Project risks and their management 2.3. Project planning 2.4. Control and management of project implementation 2.5. Documentation and completion	Using MSF project for projects distribution for traditional methodologies (PMBok standard)	To learn the main stages of the project management process from inception to execution	ISPM2_ to understand, identify and compose systems requirements and present their for users ISPM3_ to be able to develop project plans and ensure their implementation ISPM4_ to be able to identify, analyse, estimate and manage risks ISPM6_ to be able to organize teamworking	ISPM7, ISPM8

MODULE 2. Flexible project management methodology					
1	2	3	4	5	6
Topic 3. Agile fundamentals, agile methods	<i>The main sub-topic:</i> 3.1. Agile Manifesto and Principles 3.2. Agile Methods 3.3. Team working in Agile	Create a team and communication plan, the training track to ensure individual and team development	To learn the definition and major agile principles, agile software development methodology	ISPM1 _to understand and determine of the basic PM principles and Methodology, Project Life Cycle, Manager’s responsibilities	ISPM7, ISPM8
				ISPM6 _to be able to organize teamworking	
Topic 4. Scrum model	<i>The main sub-topic:</i> 4.1. Scrum models 4.2. Scrum: rituals and artefacts 4.3. Comparative characteristics of traditional and agile IT-project management methods	Development Brief. Analysis and discussion of existing prototypes using a tool CoDesine. io. (Sketch - outline the main elements). Scrum meeting organising	To learn how to apply Scrum model for software engineering	ISPM2 _to understand, identify and compose systems requirements and present their for users	ISPM7, ISPM8
				ISPM6 _to be able to organize teamworking	
Topic 5. Envisioning, Speculating	<i>The main sub-topic:</i> 5.1. Vision and Constraints of the project 5.2. Formalizing requirements (development product backlog)	Using Moqups to create and collaborate on wireframes, mockups, diagrams and prototypes. Product backlog development and users' story creation	To learn how to development vision and constraints of the project, formalizing customer’s requirements	ISPM5 _to be able to effectively use design methodologies and tools	ISPM7, ISPM8
				ISPM2 _to understand, identify and compose systems requirements and present their for users	

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1	2	3	4	5	6
<p>Topic 6. Planning, estimating</p>	<p><i>The main sub-topic:</i> 6.1. Planning presses organisation 6.2. Planning methods (Sprint determination) 6.3. IT Project Estimation. How to estimate IT project timescales and costs. Comparative analysis of different approaches to evaluation 6.4. Defining project team performance</p>	<p>Estimation of users' story-based on poker system (pokerinonline.com) Development of the cards (users' story) in Trello (decomposition to the story point) Control of the first users' story</p>	<p>To learn how to arrange sprint planning, describe the highest priority features to the team</p>	<p>ISPM3_to be able to develop project plans and ensure their implementation ISPM2_to understand, identify and compose systems requirements and present their for users</p>	<p>ISPM7, ISPM8</p>
<p>Topic 7. Exploring, adapting, presentation</p>	<p><i>The main sub-topic:</i> 7.1. Control tools of the project implementation, burndownchat 7.2. Change Management Project 7.3. Sprint Presentation 7.4. Assessment of the quality of the software development process</p>	<p>Using the tool Trello for Scrum to define of the planned tasks estimation and distribution of responsibility between team members for project tasks implementation. To develop project reporting documentation Project workflow implementation</p>	<p>To learn how to release and iteration project progress</p>	<p>ISPM3_to be able to develop project plans and ensure their implementation</p>	<p>ISPM7, ISPM8</p>

Tabl.8

Characteristics of Learning Outcomes for Management of IS Projects

Course Learning Outcomes	Code of Learning Outcomes	Knowledge	Skills	Communication	Autonomy and responsibility
1	2	3	4	5	6
to understand and determine of the basic PM principles and Methodology, Project Life Cycle, Manager's responsibilities	ISPM1	Determine basic principles , Project Life Cycle, Manager's responsibilities	Analyse principles, methods and concepts of project management	Ability to explain and discuss of the PM principles and Methodology, Project Life Cycle, Manager's responsibilities	
to understand, identify and compose systems requirements and present their for users	ISPM2	Define approaches for vision, scope and identify requirements	Research processes and projects on the basis of the system approach, identify the requirements and specifications	Ability to explain of the systems requirements and present their for users	Be responsible for defined systems requirements
to be able to develop project plans and ensure their implementation	ISPM3	Formulate methods to estimate project size. Formulate methods to derive duration from size, using velocity	Develop a basic and current project plan, identify and assign resources, estimate project costs	Ability to argue basic and current project plan and estimation of the project's tasks	Make decisions about current project plan and estimation of the project's tasks
to be able to identify, analyse, estimate and manage risks	ISPM4	Determine of risks and methods of risk management	Develop of Risk Management Model	Ability to justify of the project risks and demonstrate plan of their mitigation	Be responsible for risk prediction and defined way of their mitigation

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1	2	3	4	5	6
to be able to effectively use design methodologies and tools	ISPM5	Collect technical and community practices common to agile projects	Select of methodologies for develop and analyse release and iteration planning results	Ability to explain and discuss about different methodologies for develop and analyse release and iteration planning results	Make decisions about analyse release and iteration planning results
to be able to organize teamworking	ISPM6	Describe of core practices and rules of PMBOK, MSF and Scrum	Analyse the relationships between organizational structures, roles/responsibilities, and project management life cycles. Organise of work on an agile team	Ability to demonstrate collaboration work on the project	Be responsible for the results of project implementation

Recommended or required reading

Main:

1. A Guide to the Project Management Body of Knowledge (PMBOK® Guide) [Text]. – Ed. 5. – Project Management Institute, 2013. – 590 p.
2. Beck, K. Extreme Programming Explained: Embrace Change [Text] / K. Beck // Second Edition. – Addison-Wesley professional, 2004. – 240 p.
3. P2M «Program & Project Management for Enterprise Innovation» [Electronic resource]. – Project Management Association of Japan, 2016. –URL: http://www.pmaj.or.jp/ENG/p2m/p2m_guide/p2m_guide.html
4. The Scrum Guide. The Definitive Guide to Scrum: The Rules of the Game. – [Electronic resource]. – URL: <http://www.scrumguides.org/>.
5. [DeMarco, T., Lister, T. Peopleware: Productive projects and teams // Second Edition, 2017.](#)
6. Todd C. Williams [Rescue the Problem Project: A Complete Guide to Identifying, Preventing, and Recovering from Project Failure](#) , 2017

Additional:

1. Coblands Consulting. Reducing Project Management Risk Principles. – <http://www.netcomuk.co.uk/~rtusler/>.
2. CompMechLab-Review. Аутсорсинг/оффшоринг в разработке ПО. Анализ современного состояния и тенденций развития. — [www.fea.ru/news/hi-tech-review-Cost Management](http://www.fea.ru/news/hi-tech-review-Cost-Management). — http://www.yancy.org/research/project_management/cost.html.
3. Glossary of Project Management Terms. — <http://www.uc.edu/sashtml/orpm/chapa/index.htm>.
4. Kim Heldman [Project Management JumpStart](#), 2016
5. Jack Ferraro [Project Management for Non-Project Managers](#), 2017
6. Henrik Kniberg [Scrum and XP from the Trenches](#)„ 2007, pp.140
7. Henrik Kniberg, Mattias Skari, [Kanban and Scrum - making the most of both](#). Publisher, Lulu.com, 2010, pp. 120
8. [Верзух Эрик Управление проектами: ускоренный курс по программе MBA.: Пер. С англ. – М.:ООО «И. Д. Вильямс», 2007. – 480 с.](#)

Planned learning activities and teaching methods

The primary means of learning for student is through practice. This is supported and developed through:

1. Project briefings.
2. Set and self-initiated project briefs.
3. Peer learning.
4. Self and peer assessment.
5. Group discussions, reviews and critiques;
6. Working on live projects;
7. Mentoring.

For flexible and distributed learning

Web-based sessions lead by instructor provide methodological and conceptual framework for students' learning. All the slides and materials from the class will be available electronically.

Web-based seminars will be used to strengthen the knowledge of newly learned methods and concepts, and to explore their application to particular complex business cases.

Students are encouraged to ask questions and discuss the material in “live” mode online. There will be a web-based message board for the course. Students are welcome to post questions on this board and these discussions will be monitored and facilitated by the lecturer. The main accent will be made on independent learning

Assessment methods, criteria and regime

Progress and learning is assessed not only at the end but throughout the entire course. Evidence of an ability to think through and critically analyse challenges will be highly rewarded in the assessment. Students' grades will be determined by individual **Assignments**, based on description of the key idea, normative regulation and steps necessary to build innovation pipeline and supply it with ground-breaking ideas.

The relative weight of **Assignment Brief** will be set at 100%. It will be marked on the basis of: The aim of the report clearly formulated - 20%; Coherence of the arguments and reflection - 10%; Reflection based entirely on the description of facts and events - 40%; Utilisation of adequate terminology to describe the project management - 20%; Evidence of activities undertaken - 10 %