



Subject card

Subject name and code	Information Systems Evolution Management, PG_00048283						
Field of study	Informatics, Biomedical Engineering, Biomedical Engineering, Biomedical Engineering						
Date of commencement of studies	February 2025		Academic year of realisation of subject		2025/2026		
Education level	second-cycle studies		Subject group		Optional subject group Specialty subject group Subject group related to scientific research in the field of study		
Mode of study	Full-time studies		Mode of delivery		at the university		
Year of study	1		Language of instruction		Polish		
Semester of study	2		ECTS credits		2.0		
Learning profile	general academic profile		Assessment form		exam		
Conducting unit	Department of Software Engineering -> Faculty of Electronics, Telecommunications and Informatics						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Andrzej Wardziński				
	Teachers		dr inż. Andrzej Wardziński				
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	0.0	15.0	0.0	30
	E-learning hours included: 0.0						
Learning activity and number of study hours	Learning activity	Participation in didactic classes included in study plan		Participation in consultation hours		Self-study	SUM
	Number of study hours	30		4.0		16.0	50
Subject objectives	The goal of this course is to develop understanding of the role and scope of the processes of information systems evolution, to acquire knowledge of the methods and techniques of IT systems operational management, their modifications, integration, migration, support services and continuity management						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K7_W10] knows and understands, to an increased extent, the basic processes occurring in the life cycle of equipment, objects and technical systems, as well as methods of supporting processes and functions, specific to the field of study	The student knows the processes of managing changes in the software life cycle, taking into account aspects of its operation, including DevOps processes.	[SW1] Assessment of factual knowledge
	[K7_U12] is able, to an increased extent, to analyze the operation of components and systems related to the field of study, as well as to measure their parameters and study their technical characteristics, and to plan and carry out experiments related to the field of study, including computer simulations, interpret the obtained results and draw conclusions	The student is able to analyze the software development and modification process, prepare such a process and improve it.	[SU4] Assessment of ability to use methods and tools
	[K7_W03] knows and understands, to an increased extent, the construction and operating principles of components and systems related to the field of study, including theories, methods and complex relationships between them and selected specific issues - appropriate for the curriculum	The student knows the properties of system architectures and their components and is able to apply them to ensure ease of evolution, maintenance and scalability	[SW1] Assessment of factual knowledge
	[K7_U08] while identifying and formulating engineering tasks specifications and solving these tasks, can: - apply analytical, simulation and experimental methods, - notice their systemic and non-technical aspects, - make a preliminary economic assessment of suggested solutions and engineering work	The student can analyze the processes of information system change management, business continuity and service level including aspects of business processes, organization, location, data, applications and infrastructure.	[SU1] Assessment of task fulfilment

Subject contents	Lecture		
	The scope of the lectures includes: - Information systems evolution process - software quality and maintainability - Change analysis and management - Architecture and design patterns - Data quality - Configuration and release management, Continuous integration - Quality assurance, software code quality - Evolutionary software development model - Agile methodologies, XP, SCRUM - IT services management, ITIL, DevOps Student project During this project students work in groups. Groups receive a task requiring analysis in the areas like system changes (integration, migration), or management of system continuity or service level. The aim of the project is to use the knowledge acquired during the course to analyze the problem for a particular information system and determine organizational and technical solutions.		
Prerequisites and co-requisites	No prerequisites		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Project	50.0%	50.0%
	Theory	50.0%	50.0%
Recommended reading	Basic literature	1. ISO/IEC 20000-1:2011 (IEEE 20000-1:2011), "Information technology - Service management", 2011 2. Ken Schwaber, Jeff Sutherland, SCRUM Guide, SCRUM Alliance, 2017 3. Martin Fowler, Kent Beck, John Brant, William Opdyke, Don Roberts, „Refactoring: Improving the Design of Existing Code", Addison-Wesley 2012	
	Supplementary literature	1. T. Mens, S. Demeyer, Software Evolution, Springer-Verlag, 2008 2. Steve McConnell, „Software Estimation: Demystifying the Black Art", Microsoft Press, 2006 3. J. Hurwitz, R. Bloor, M. Kaufman, F. Halper, "Service Oriented Architecture For Dummies", Wiley, 2009 4. Jurgen Appelo, „Management 3.0: Leading Agile Developers, Developing Agile Leaders", Addison-Wesley, 2011 5. John van Bon, "Foundations of IT Service Management: based on ITIL", Van Haren Publishing, 2005	
	eResources addresses	Adresy na platformie eNauczanie:	
Example issues/ example questions/ tasks being completed	- measures of ease of maintenance and changes (evolution) of the system - design patterns used in the evolutionary software development - architectural patterns for the evolution of systems and their scalability - service level management (SLA)		
Work placement	Not applicable		

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