

Subject card

Subject name and code	Software Engineering, PG_00157266						
Field of study	Information Science and Econometrics						
Date of commencement of studies	October 2024		Academic year of realisation of subject		2025/2026		
Education level	postgraduate studies		Subject group		Obligatory subject group in the field of study Subject group related to scientific research in the field of study		
Mode of study	part-time studies		Mode of delivery		at the university		
Year of study	2		Language of instruction		Polish		
Semester of study	3		ECTS credits		4.0		
Learning profile	academic		Assessment form				
Conducting unit	Katedra Informatyki Ekonomicznej -> Faculty of Management -> Rektor						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. Jerzy Auksztol				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	15.0	0.0	0.0	0.0	30
	E-learning hours included: 0.0						
	Additional information: Problem-based lecture						
	Laboratory						
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		15.0		60.0	105
Subject objectives	- Familiarizing students with the basic challenges, methods, techniques and tools of information systems and software development, and maintenance. - Preparing students to create useful, high-quality software for private needs and for enterprises, public and non-profit sector institutions.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[liEMU2_K05] The student can think and act in an entrepreneurial manner and flexibly adapt to changing environmental conditions. Thinks creatively and can go beyond the usual patterns.	The student is able to participate in the process of implementing an IT project producing an information system and software in accordance with the assumptions of a selected agile method, oriented towards final results important for the end customer.	[SK2] presentation/project/paper/report [SK4] test/exam - oral or written
	[liEMU2_W07] The student has an extended and established knowledge of ethical norms applicable to business, good practices for its conduct and legal regulations for the protection of intellectual property. The student has an extended knowledge of the risks and responsibilities associated with the computerization of business processes. The student knows the principles of netiquette.	The student knows the issues of intellectual property in the context of IT projects and, on this basis, selects appropriate IT tools and prepares licensing conditions for the software being constructed.	[SW4] test/exam - oral or written [SW2] presentation/project/paper/report
	[liEMU2_U03] The student is able to identify, to an in-depth degree, the institutional-legal and social constraints on the functioning of economic structures and institutions and reflect them in modeling, forecasting and optimization.	The student is able to identify threats to an IT project and adapt the development process based on this, as well as is able to plan actions in the event of their disclosure. The student is able to communicate project risks to stakeholders in the full scope of its course.	[SU2] presentation/project/paper/report [SU4] test/exam - oral or written
	[liEMU2_K04] The student can work in a team, co-create it, effectively manage and supervise it; efficiently adapts his behavior and conduct to his role in it; is ready to take responsibility for the team and bear the consequences; understands the necessity of systematicity and consistency in action; is open to other team members and critical of himself.	The student uses agile methods, taking into account social factors, in organizing the IT project implementation process, using the support of IT tools, such as GitHub configuration management websites.	[SK2] presentation/project/paper/report [SK4] test/exam - oral or written
	[liEMU2_U02] The student is able to proficiently acquire detailed information about economic processes and phenomena through direct observation, planned experimentation or database queries, as well as collect and process it using modern information technology tools.	The student is able to prepare a complete, unambiguous and precisely defined requirements specification of an IT system or software.	[SU2] presentation/project/paper/report [SU4] test/exam - oral or written
	[liEMU2_K06] The student knows the need for ethical, sustainable and socially responsible behavior in professional and social life. Initiates and organises activities for the social environment and public interest.	The student is able to plan and implement IT projects taking into account ethical, sustainable and socially responsible behavior.	[SK2] presentation/project/paper/report [SK4] test/exam - oral or written
	[liEMU2_W03] The student has an in-depth knowledge of man as a subject who creates economic structures and institutions.	The student knows about methods of obtaining requirements in various organizational structures, documenting the process of implementing IT projects along with a description of their final effects in the form of IT systems and software.	[SW4] test/exam - oral or written [SW2] presentation/project/paper/report
	[liEMU2_U04] The student is able to plan, design, and program information systems at an advanced level, supporting the operation of business entities.	The student is able to implement an IT project based on the approved requirements specification.	[SU2] presentation/project/paper/report [SU4] test/exam - oral or written

Subject contents	• The essence, classification and terminology of information systems and software development. • Introduction to Intellectual Property rights protection and management in IT projects • Requirements specification - identification of stakeholder and system requirements, analysis of their scope, precision and completeness, negotiation, feasibility study, • Information systems and software design. • Information systems and software project management - organization methods; system life cycle models; cost planning and estimation techniques; project scheduling and monitoring; reliability issues; project team formation, design work decomposition. • Software quality and metrics - errors and faults, software quality measures; verification, validation and testing; software review, inspections and audit;		
Prerequisites and co-requisites	Elementary knowledge of programming, databases and IT systems design.		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Information system or software development project	60.0%	50.0%
	Exam	60.0%	50.0%
Recommended reading	Basic literature	• Pressman R.S., Software Engineering: A Practitioner's Approach, McGraw-Hill, 2005. • Sommerville I., Software Engineering, Addison Wesley, 2004. • Informatyka ekonomiczna. Teoria i zastosowania (ang. Business Informatics, Theory and practice), red. S. Wrycza, J. Maślankowski, PWN, Warszawa 2019, s. 247-270	
	Supplementary literature	• ISO/IEC TR 19759:2015 Software engineering Guide to the engineering body of knowledge, 2015.. • IEEE/ISO/IEC 24765:2010, Systems and software engineering - Vocabulary, 2010. • ISO/IEC 12207:2008, Systems and software engineering -- Software life cycle processes, 2008. • IEEE 1012-2012, Standard for System and Software Verification and Validation, 2012. • IEEE 1028-2008, Standard for Software Reviews and Audits, 2008. • ISO/IEC 25010:2011 System and software engineering Systems and software Quality Requirements and Evaluation (SQaRE) System and software quality models, 2011.	
	eResources addresses	Adresy na platformie eNauczanie:	
Example issues/ example questions/ tasks being completed	• Shaping an effective information system and software development process. • Methods for obtaining, documenting and constructing criteria for assessing the quality of requirements specifications. • Effective selection of techniques for describing the design of an information systems and software • Effective selection of tools and information technologies enabling the achievement of the set goal. • Methods for shaping the process of assessing the quality of an information systems and software		
Work placement	Not applicable		

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