



Subject card

Subject name and code	Requirements Engineering, PG_00048274						
Field of study	Informatics						
Date of commencement of studies	February 2024	Academic year of realisation of subject			2023/2024		
Education level	second-cycle studies	Subject group			Optional 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	1	ECTS credits			4.0		
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. Aleksander Jarzębowicz				
	Teachers		dr inż. Aleksander Jarzębowicz				
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		8.0		62.0	100
Subject objectives	To develop understanding of the role and scope of requirements engineering within the context of software lifecycle.						
	To acquire knowledge on the processes of requirements engineering and the methods and techniques of their realisation.						
	Practicing requirements engineering with respect to a selected problem of information system development.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K7_W04] Knows and understands, to an advanced extent, the principles, methods and techniques of programming and the principles of computer software development or programming devices or controllers using microprocessors or programmable elements or systems specific to the field of study, and organisation of systems using computers or such devices	Students recognizes the significance of requirements engineering and knows its processes and techniques used in particular activities included in such processes. Knows and distinguishes various categories of requirements capturing the needs of stakeholders from the domain the IT system is dedicated.	[SW1] Assessment of factual knowledge
	[K7_U41] can select methods of modelling and analysis of information systems and applications using selected elements of theoretical computer science and modern programming tools	Student is able to select requirements specification and documentation techniques that are suitable in a given software project and adequate to represent particular kinds of requirements.	[SU1] Assessment of task fulfilment
	[K7_U42] can solve engineering and research problems including design, assessment and maintenance of information systems and applications, using experimental methods and management techniques	Student is able to express particular requirements using textual descriptions as well as modelling notations and their diagrams.	[SU1] Assessment of task fulfilment
	[K7_U08] while identifying and formulating engineering tasks specifications and solving these tasks, can:n- apply analytical, simulation and experimental methods,n- notice their systemic and non-technical aspects,n- make a preliminary economic assessment of suggested solutions and engineering workn	Student considers all requirements including non-functional requirements and constraints in a wider context of customer organization and stakeholders' needs; is able to apply appropriate techniques of requirements elicitation, analysis and validation.	[SU1] Assessment of task fulfilment
Subject contents	<p>Lecture:</p> <ul style="list-style-type: none"> • Introduction; risks related to software projects • Types of software project; the cost of requirements failure • Requirements in the context of software lifecycle • Different perspectives on requirements • Scope of requirements; • Requirements lifecycle • system stakeholders and their viewpoints • System objectives and scope; • Inventory of stakeholders • Modeling system context: business events • Modeling system context: business use cases • Identification of system scope • Requirements elicitation techniques: domain studies, analysis of an existing system, interviews, groupwork • Requirements analysis • Analytical techniques, quality criteria, checklists CRUD analysis, text analysis, modelling • Requirements inspections • Categories of requirements: objectives, functional, quality, constraints, assumptions • Specification of functional requirements: context diagrams, scenarios, data models, business events • Specification of functional requirements: system events, use cases, virtual windows • Specification of functional requirements: features, algorithms, state diagrams • Specification of quality requirements: reliability, security • Specification of functional requirements: performance, presentation, usability • Specification of constraints and assumptions • Measurability of requirements • Management of requirements • Traceability of requirements • Requirements engineering in the Level 2 of CMMI model <p>Project:</p> <ul style="list-style-type: none"> • Introduction • Selection of a problem; • Specification of business objectives • Identification of stakeholders • Specification of the problem – business use cases • Problem analysis and selection of system scope and interfaces • System specification – functional and quality requirements • Requirements specification 		

Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	written test	50.0%	50.0%
	report from project	50.0%	50.0%
Recommended reading	Basic literature	Wiegiers K., Beatty J., Software Requirements, 3rd Edition, Microsoft Press, 2013	
	Supplementary literature	<p>ISO/IEC/IEEE Std 29148-2011, Systems and software engineering — Life cycle processes — Requirements engineering</p> <p>International Institute of Business Analysis, A Guide to the Business Analysis Body of Knowledge, ver. 3, 2015</p> <p>Project Management Institute, Business Analysis for Practitioners: A Practice Guide, PMI, 2015</p> <p>International Requirements Engineering Board, IREB Certified Professional for Requirements Engineering, ver. 2.2.2, 2017</p>	
	eResources addresses	<p>Adresy na platformie eNauczenie:</p> <p>Inżynieria Wymagań 2023/2024 - Moodle ID: 36923</p> <p>https://enauczenie.pg.edu.pl/moodle/course/view.php?id=36923</p>	
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		