Subject card

Subject name and code	Requirements Engineering, PG_00048274
Field of study	Informatics

Date of commencement of studies	February 2025	**Academic year of realisation of subject**	2024/2025
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	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 an information system 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 increased extent, the principles, methods and techniques of programming and the principles of computer software development or programming devices or controllers using microprocessors or other elements or programmable devices specific to the field of study, and organization of work 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_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	Student is able to specify verifiable and testable software requirements, define acceptance criteria and verification procedures for requirements; also can use such resources in the testing activities.	[SU3] Assessment of ability to use knowledge gained from the subject
	[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	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	
	Lecture: • Motivation - significance of requirements engineering in IT projects; • Basic terms used in requirements engineering; • Main areas and activities of requirements engineering; • Definition of system's business goals; • Identification of stakeholders and establishing cooperation with them; • Identification of the scope of the considered problem; • Definition of the scope and interfaces of the developed system; • Requirements elicitation - scope, problems, good practices; • Requirements elicitation techniques; • Requirements analysis; • Requirements quality and criteria of quality assessment; • Reviews and inspections of requirements; • Requirements specification; • Functional requirements specification techniques; • Techniques for specifying business goals, business rules and constraints; • Specifying non-functional requirements in measurable (verifiable) way; • Requirements validation; • Requirements management; • Requirements engineering vs. business analysis; • Agile requirements engineering; • Requirements engineering for AI and ML systems; Project: • Introduction; • Selection of a topic; • 1st phase of the project (definition of RE process, description of the problem, problem analysis, high-level requirements); • Mutual reviews of 1st phase results (between teams); • 2nd phase of the project (improvements to 1st phase products, definition of detailed functional requirements, non-functional requirements and constraints); • Mutual reviews of 2nd phase results (between teams);

Prerequisites and co-requisites	

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	written test	50.0%	50.0%
	project results	50.0%	50.0%

Recommended reading	Basic literature	Wiegers K., Beatty J., Software Requirements, 3rd Edition, Microsoft Press, 2013

	Supplementary literature	ISO/IEC/IEEE Std 29148-2018, Systems and software engineering Life cycle processes Requirements engineering
		International Institute of Business Analysis, A Guide to the Business Analysis Body of Knowledge, ver. 3, 2015
		Project Management Institute, Business Analysis for Practitioners: A Practice Guide, PMI, 2015
		International Requirements Engineering Board, IREB Certified Professional for Requirements Engineering, Foundation Level ver. 3.2, 2024
	eResources addresses	Adresy na platformie eNauczanie: Inżynieria Wymagań 2024/2025 - Moodle ID: 40137 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=40137
Example issues/ example questions/ tasks being completed		
Work placement	Not applicable	

Document generated electronically. Does not require a seal or signature.