GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Requirements Engineering, PG_00047723		
Field of study	Informatics		
Date of commencement of studies	October 2024	Academic year of realisation of subject	2024/2025
Education level	second-cycle 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	1	Language of instruction	Polish
Semester of study	2	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. Maciej Kucharski	

Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	12.0	0.0	0.0	15.0	0.0	27
	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	27	10.0	63.0	100

Subject objectives	To develop understanding of the role and scope of requirements engineering within the context of software lifecycyle. 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_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 requirements (including non-functional requirements and limitations) in the wider context of customer organization and stakeholders' needs; can use requirements elicitation, analysis and specification techniques.	[SU1] Assessment of task fulfilment
[K7_W43] Knows and understands, to an increased extent, the nformal, technical and social aspects of the operation of complex information systems in the information society and in the global information n infrastructure.	Student knows and distinguishes various categories of requirements, which capture the needs of stakeholders representing the environment the system will operate in.	[SW1] Assessment of factual knowledge
[K7_W05] Knows and understands, to an increased extent, methods of process and function support, specific to the field of study.	Student understands the significance of requirements engineering and has knowledge about its processes as well as techniques used in particular phases of the processes.	[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 can select adequate way to specify a given requirement choosing from textual descriptions and modelling notations and their diagrams.	[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 can identify and document requirements concerning an IT system, following established requirements engineering processes and techniques.	[SU1] Assessment of task fulfilment

Subject contents

Lecture:

1. Introduction; risks related to software projects; types of software Project; the cost of requirements failure
2. Requirements in the context of software lifecycle;
3. Different perspectives on requirements, Scope of requirements; Requirements lifecycle
4. System stakeholders and their viewpoints
5. System objectives and scope; Inventory of stakeholders
6. Modeling system context: business events Modeling system context: business use cases Identification of system scope
7. Requirements elicitation techniques: domain studies, analysis of an existing system, interviews, groupwork
8. Requirements analysis: verification and validation
9. Analytical techniques, quality criteria, checklists, CRUD analysis, text analysis, modelling, requirements inspections
10. Categories of requirements: objectives, functional, quality, conctraints, assumptions
11. Specification of functional requirements: context diagrams, scanarios, data models, business events
12. Specification of functional requirements: system events, use cases, virtual windows
13. Specification of functional requirements: features, algorithms, state diagrams
14. Specification of quality requirements: reliability, security
15. Specification of quality requirements: performance, presentation, usability Specification of constraints and assumptions
16. Measurability of requirements
17. Management of requirements
18. Traceability of requirements
19. Requirements engineering in the LEVEL 2 of CMM

Project:

1. Introducion
2. Selection of a problem
3. Specification of business objectives; Problem analysis and selection of system scope and interfaces
4. Specification of stakeholders
5. Specification of the problem – business use cases
6. System specification – functional and quality requirements

Prerequisites and co-requisites

No requirements

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	Wiegers, K., Beatty, J.: Software Requirements (3rd Edition). Microsoft Press, 2013
	Supplementary literature	ISO/IEC/IEEE Std 29148-2011, 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, ver. 2.2.2, 2017
	eResources addresses	Adresy na platformie eNauczanie:
Example issues/ example questions/ tasks being completed		
Work placement	Not applicable	