



Subject card

Subject name and code	Design of Multilayer and Distributed Applications and Systems, PG_00063895						
Field of study	Informatics						
Date of commencement of studies	October 2024		Academic year of realisation of subject			2027/2028	
Education level	first-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	4		Language of instruction			Polish	
Semester of study	7		ECTS credits			3.0	
Learning profile	general academic profile		Assessment form			assessment	
Conducting unit	Department of Computer Architecture -> Faculty of Electronics, Telecommunications and Informatics						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Jarosław Kuchta				
	Teachers		dr inż. Jarosław Kuchta				
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	0.0	30.0	0.0	45
	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	45		3.0		27.0	75
Subject objectives	Acquiring knowledge and skills to design applications running in multitier Internet systems						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K6_U09] can carry out a critical analysis of the functioning of existing technical solutions and assess these solutions, as well as apply experience related to the maintenance of technical systems, devices and facilities typical for the field of studies, gained in the professional engineering environment	Creates project documentation web application or system Internet using known design patterns	[SU1] Assessment of task fulfilment [SU3] Assessment of ability to use knowledge gained from the subject
	[K6_U04] can apply knowledge of programming methods and techniques as well as select and apply appropriate programming methods and tools in computer software development or programming devices or controllers using microprocessors or programmable elements or systems specific to the field of study	Is able to use knowledge of programming methods and techniques when designing multi-layer and distributed applications and systems.	[SU1] Assessment of task fulfilment [SU3] Assessment of ability to use knowledge gained from the subject [SU4] Assessment of ability to use methods and tools
	[K6_W03] knows and understands, to an advanced 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	Knows and understands at an advanced level the structure and principles of operation of multi-layer and distributed applications and systems.	[SW1] Assessment of factual knowledge [SW3] Assessment of knowledge contained in written work and projects
	[K6_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	Knows architecture models internet application systems. Distinguishes architecture multi-layered and multi-stem. Knows the ways to split functions application between client and server. Knows the main design patterns distributed applications. Know principles of main constructions architectural layers.	[SW1] Assessment of factual knowledge
Subject contents	<ul style="list-style-type: none">Modeling and Designing Multi-Tier and Distributed SystemsDesigning the Architecture of a Complex SystemDesigning the Logic Layer of a SystemPrinciples of Designing the User Interface of a Complex SystemPrinciples of Designing the Data Structure of a Complex SystemData Layer Design PatternsDesign Patterns for Passing Data Between Distributed ComponentsService Layer Design PatternsWeb Application Construction Design PatternsWeb Application Presentation Layer Design Patterns		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Exam during semester	50.0%	50.0%
	Project documentation	50.0%	50.0%
Recommended reading	Basic literature	Andrew S. Tanenbaum, Maarten Van Steen: Distributed Systems: Principles and Paradigms Core J2EE Pattern Catalog, http://www.corej2eepatterns.com/ Erich Gamma, Richard Helm, Ralph Johnson and John Vlissides: Design Patterns: Elements of Reusable Object-Oriented Software	
	Supplementary literature	Guidelines, Patterns, and code for end-to-end Java applications. http://www.oracle.com/technetwork/java/catalog-137601.html	
	eResources addresses	Adresy na platformie eNauczanie:	
	Example issues/ example questions/ tasks being completed	<ul style="list-style-type: none">Differences between multilayer and multi-tier web-based system.Ways to ensure the scalability of web applications running in the multitier system.Design patterns used in the construction of web applications	

Work placement	Not applicable
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