



## Subject card

Subject name and code	Component-Based Distributed Systems, PG_00047886						
Field of study	Informatics						
Date of commencement of studies	October 2025		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	3		Language of instruction		Polish		
Semester of study	6		ECTS credits		4.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Department Of Algorithms And Systems Modelling -> Faculty Of Electronics Telecommunications And Informatics -> Wydział Politechniki Gdańskiej						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Krzysztof Manuszewski				
	Teachers		dr inż. Krzysztof Manuszewski				
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	30.0	0.0	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		5.0		50.0	100
Subject objectives	The direct goal is preparation of student for identification and solving of typical problems connected to design and implementation distributed systems.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[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	Student Knows typical solutions for implementation of distributed business logic	[SW1] Assessment of factual knowledge
	[K6_U03] can design, according to required specifications, and make a simple device, facility, system or carry out a process, specific to the field of study, using suitable methods, techniques, tools and materials, following engineering standards and norms, applying technologies specific to the field of study and experience gained in the professional engineering environment	Student Is able to implement the metaphore of distributed approach like comonent or service	[SU1] Assessment of task fulfilment
	[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	Student Is able to implement components/services and make the communication efficient	[SU1] Assessment of task fulfilment
	[K6_W44] knows and understands, to an advanced extent, architecture, design principles and methods of hardware and software support for local and distributed information systems, including computing systems, databases, computer networks and information applications, as well as the principles of human-computer interaction, the operation and evaluation criteria of data processing, storage and transfer methods, including computational algorithms, artificial intelligence and data mining as well as standards and methods of IT systems administration, monitoring of processes and robustness to undesirable phenomena and activities	The student is able to assess the usefulness of various architectural patterns/solutions	[SW1] Assessment of factual knowledge
Subject contents	<p>Component conception. Problems and challenges in large system development process.</p> <p>Com as an example of component oriented technology that supports object distribution.</p> <p>Various conceptions for server side solutions: distributed objects vs SOA.</p> <p>Distributed solutions based on services/microservices</p> <p>Asynchronous approach. Role of middle ware. Solutions based on service bus/broker.</p> <p>Distributed systems hosted in cloud.</p>		
Prerequisites and co-requisites	Experience in C/C++ and C# or Java		

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Labratories	50.0%	60.0%
	Test	50.0%	40.0%
Recommended reading	Basic literature	A. Rotem-Gal-Oz, Soa Patterns, 2012  S. Newman Building Microservices: Designing Fine-Grained Systems, O'Reilly 2021	
	Supplementary literature	T.Erl, B.Carlyle, C. Pautasso, R. Balasubramanian, H. Wilhelmsen, D. Booth, SOA with REST: Principles, Patterns & Constraints for Building Enterprise Solutions with REST, 2011	
	eResources addresses	Adresy na platformie eNauczanie:	
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		

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