GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Component-based Distributed Systems, PG_00047886
Field of study	Informatics

Date of commencement of studies	October 2023	Academic year of realisation of subject	2025/2026
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

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_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 implement components/ services and make the communication efficient	[SU1] Assessment of task fulfilment
	[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	Is able to implement the metaphore of distributed approach like comonent or service	[SU1] Assessment of task fulfilment
	[K6_W42] 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 cooperation with computers and computer-aided teamwork	Knows the diiference between distributed objects and SOA	[SW1] Assessment of factual knowledge
	[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 typcal solutions for implementation of distributed business logic	[SW1] Assessment of factual knowledge
	[K6_U42] can apply tools and methods of designing, optimization, monitoring, management, increasing reliability and protection from safety hazards in local and distributed information systems and applications	Is able to implement the SOA, and distributed objects approach	[SU1] Assessment of task fulfilment

Subject contents	Component conception. Problems and challenges in large system development process.
	Com as an example of component oriented technology that supports object distribution.
	Various conceptions for server side solutions: distributed objects vs SOA.
	Distributed solutions based on WCF
	Asynchronous approach. Role of middle ware. Solutions based on service bus/broker.
	Distributed systems hosted in cloud based on Azure example.

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
	Test	50.0%	30.0%
	Labratories	50.0%	70.0%

Recommended reading	Basic literature	A. Rotem-Gal-Oz, Soa Patterns, 2012 T.Erl, D.Chou, others, SOA with .NET and Windows Azure, 2010
	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