GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Distributed processing in medical applications, PG_00049299		
Field of study	Biomedical Engineering		
Date of commencement of studies	October 2022	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	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 Biomedical Engineering -> Faculty of Electronics, Telecommunications and Informatics		
Name and surname of lecturer (lecturers)	Subject supervisor	prof. dr hab. inż. Jacek Rumiński	
	Teachers	prof. dr hab. inż. Jacek Rumiński	

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	3.0	42.0	75

Subject objectives

The aim of the course is to teach students basic knowledge and skills in the field of distributed systems and distributed computing.

Subject partially implemented using the methods and techniques of distance education (blended learning).

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	The student has knowledge in the field of: - designing a distributed processing system and choosing the right architecture, - construction of distributed processing system, - designing network services dedicated to distributed processing, - building software packages implementing the process of servicing web services, - using information technologies in the field of design and implementation of distributed processing systems, - the use of Java, .NET, XML technologies in the field of distributed computing systems.	[SW1] Assessment of factual knowledge
[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 skills gained: - Distributed processing system design and selection of an appropriate architecture, - Construction of a distributed processing system, - The design of web services dedicated to the processing of scattered, - Building a software package implementing the process for using web services (Web services) - The use of information technology in the design and implementation of distributed processing systems, - The use of Java technologies. NET, XML for distributed processing systems.	[SU1] Assessment of task fulfilment

Subject contents

1. Introduction. Basic terms. Goals of distributed systems 2. GRID systems. Applications 3. Concurrency in distributed processing 4. Fundamental architectures of distributed systems. A client-server model 5. Fundamental architectures of distributed systems.The 3-tiers models 6. Fundamental architectures of distributed systems.Multi-tiers models (JEE, NET). Data sources 7. Distributed transactions 8. RPC i XML-RPC 9. Web services: fundamental technologies SOAP, WSDL, UDDI 10. Web services: development and deployment of services 11. Web services: a client components; 12. Applications of the AJAX technology 13. Object-oriented distributed systems - introduction to RMI 14. Distributed processing in RMI 15. Distributed processing using Linda/JavaSpaces technologies

Prerequisites and co-requisites

ability of structural and object-oriented programming
knowledge of Java, HTML, XML and databases

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Project	51.0%	60.0%
Tests	20.0%	40.0%

Recommended reading

Basic literature	Eckel B., Thinking In Java, edycja polska, Helion 2006 Ian Foster (Editor) , Carl Kesselman (Editor), The Grid: Blueprint for a New Computing Infrastructure Morgan Kaufmann, 1998 Nicholas C. Zakas, Jeremy McPeak, Joe Fawcett , Ajax. Zaawansowane programowanie, Helion 2007. Skrypt z materiałami do przedmiotu Przetwarzanie rozproszone Sławomir Orłowski, C#. Tworzenie aplikacji sieciowych. 101 gotowych projektów, Helion 2006.
Supplementary literature	No requirements
eResources addresses	Adresy na platformie eNauczanie:

Example issues/ example questions/ tasks being completed

Work placement

Not applicable