GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Internet Services Architectures, PG_00053907						
Field of study	Informatics						
Date of commencement of studies	October 2026		Academic year of realisation of subject	2028/2029			
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	5		ECTS credits	3.0			
Learning profile	general academic profile		Assessment form	assessment			
Conducting unit	Department of Computer Architecture -> Faculty of Electronics Telecommunications and Informatics -> Faculties of Gdańsk University of Technology						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. inż. Joanna Szłapczyńska				
	Teachers		dr hab. inż. Joanna Szłapczyńska				

Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	15.0	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	4.0	26.0	75

Subject objectives	The goal is to make students familiar with modern architectures of distributed systems as well as technologies implementing those architectures.

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	Knows and understands the organization of cloud computing systems.	[SW1] Assessment of factual knowledge
[K6_W01] knows and understands, to an advanced extent, mathematics necessary to formulate and solve simple issues related to the field of study	Knows and understands mathematics to the extent necessary to calculate simple issues related to the operations of the cloud computing systems, e.g. determining the size of an instance pool based on the current load.	[SW1] Assessment of factual knowledge
[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	Can make a critical analysis of how services work in the cloud. Is able to use the experience related to maintaining high-availability systems in the cloud.	[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	Is able to use his knowledge of programming methods and techniques in creating software in serverless architecture.	[SU1] Assessment of task fulfilment

Subject contents

Course content – lecture
- Architecture of complex web applications.
- Object-relational mapping mechanisms.
- Architectural style using state change through representation.
- Decomposition of an application into microservices.
- Design and deployment of microservices.
- Single-page web applications.
- Containerization systems.
- Cataloging and searching for services.
- Load balancing of services.
- Database structure migration.
- Message exchange mechanisms.
- Authentication and authorization mechanisms.

Prerequisites and co-requisites

Knowledge of languages such as Java, JavaScript, SQL as well as http protocol

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
laboratory exercises	50.0%	50.0%
exam	50.0%	50.0%

Recommended reading

Basic literature	1. AUI/ISA lecture materials at eNauczanie platform 2. Dokumentation of Spring Framework, 3. Dokumentation of RabbitMQ, 4. Dokumentation of Docker
Supplementary literature	Microservices Patterns: With examples in Java,Chris Richardson, 2018, Manning Publications
eResources addresses	

Example issues/ example questions/ tasks being completed

Practical activites within the subject

Not applicable

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