GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Internet services architectures, PG_00045384
Field of study	Data Engineering

Date of commencement of studies	October 2022	Academic year of realisation of subject	2024/2025
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	4.0
Learning profile	general academic profile	Assessment form	exam

Conducting unit	Department of Computer Architecture -> Faculty of Electronics, Telecommunications and Informatics

Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Joanna Szłapczyńska
	Teachers	mgr inż. Szymon Olewniczak dr hab. inż. Joanna Szłapczyńska mgr inż. Hammed Mojeed mgr inż. Michał Wójcik

Lesson types and methods of instruction	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	6.0	49.0	100

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_U01] programs in procedural, object, functional and logic programming languages, codes programs at the processor instruction level, runs and tests programs.	develops serverless applications in high-level language, runs and tests developed programs in a cloud environment	[SU1] Assessment of task fulfilment
	[K6_W04] Knows the architecture of computers, operating system processes, file systems, text processing programs, disk and ram memories management rules. Knows the problems of sharing the state, presentation and transformation of information in a distributed system, hypermedia technologies and related services, the architecture of interactive distributed simulation and agent interaction methods.	knows the principles of cloud resource management, knows the problems of data processing in the cloud	[SW1] Assessment of factual knowledge
	[K6_K01] is aware of quickly changing trends and the resulting need for further education and self-improvement in the area of the performed profession of an engineer with IT and economic-financial skills.	is aware of rapidly changing trends in the field of cloud computing with particular emphasis on solutions related to cost effectiveness.	[SK5] Assessment of ability to solve problems that arise in practice

Subject contents	• 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	Adresy na platformie eNauczanie: 2024/2025 - Architektury usług internetowych - Moodle ID: 41034 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=41034	
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		

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