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 2021	Academic year of realisation of subject	2023/2024
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		
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Joanna Szłapczyńska	
	Teachers	dr hab. inż. Joanna Szłapczyńska mgr inż. Michał Wójcik mgr inż. Konrad Zawora	

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	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

<table>
<tr><td>Subject contents</td><td>1. Passing criteria

2. What is cloud computing

3. Cloud economics

4. Basic cloud services

5. Security in the cloud

6. Databases in the cloud

7. Flexibility of cloud applications

8. High availability and fault tolerance

9. Cloud infrastructure management automatization

10. Data storage in the cloud

11. Reliability of cloud applications

12. Performance of cloud applications

13. Cost effectiveness

14. Design patterns for cloud applications</td></tr>
<tr><td>Prerequisites and co-requisites</td><td>Basic knowledge of virtualization and Linux-based operating systems</td></tr>
<tr><td>Assessment methods and criteria</td><td><table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td>laboratory exercises</td><td>50.0%</td><td>50.0%</td></tr>
<tr><td>exam</td><td>50.0%</td><td>50.0%</td></tr>
</table></td></tr>
<tr><td>Recommended reading</td><td><table>
<tr><td>Basic literature</td><td>1. Lecture notes available on eNauczanie platform

2. Aurobindo Sarkar, Amit Shah, Learning AWS, 2015

3. Andreas Wittig, Michael Wittig, Amazon Web Services in Action, 2015</td></tr>
<tr><td>Supplementary literature</td><td>1. AWS platform documentation</td></tr>
<tr><td>eResources addresses</td><td>Adresy na platformie eNauczanie:
2023/2024 - Architektury Usług Internetowych - Moodle ID: 27928
https://enauczanie.pg.edu.pl/moodle/course/view.php?id=27928</td></tr>
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<tr><td>Example issues/ example questions/ tasks being completed</td><td>Design and implementation of a cloud application taking advantage of load-balancing mechanisms

Design and implementation of a cloud application using databases

Design and implementation of a cloud application taking advantage of auto-scaling mechanisms</td></tr>
<tr><td>Work placement</td><td>Not applicable</td></tr>
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