



## 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 inż. Tomasz Boiński				
	Teachers		dr inż. Tomasz Boiński				
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 Python, runs and tests developed programs in a cloud computing 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.		is familiar with disk and memory management rules in a computing cloud, is familiar with issues related to data processing in a computing 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	<ol style="list-style-type: none"> <li>1. Passing criteria</li> <li>2. What is cloud computing</li> <li>3. Cloud economics</li> <li>4. Basic cloud services</li> <li>5. Security in the cloud</li> <li>6. Databases in the cloud</li> <li>7. Flexibility of cloud applications</li> <li>8. High availability and fault tolerance</li> <li>9. Cloud infrastructure management automatization</li> <li>10. Data storage in the cloud</li> <li>11. Reliability of cloud applications</li> <li>12. Performance of cloud applications</li> <li>13. Cost effectiveness</li> <li>14. Design patterns for cloud applications</li> </ol>		
Prerequisites and co-requisites	Basic knowledge of virtualization and Linux-based operating systems		
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		<ol style="list-style-type: none"> <li>1. Lecture notes available on eNauzanie platform</li> <li>2. Aurobindo Sarkar, Amit Shah, Learning AWS, 2015</li> <li>3. Andreas Wittig, Michael Wittig, Amazon Web Services in Action, 2015</li> </ol>
	Supplementary literature		1. AWS platform documentation
	eResources addresses		
Example issues/ example questions/ tasks being completed	<p>Design and implementation of a cloud application taking advantage of load-balancing mechanisms</p> <p>Design and implementation of a cloud application using databases</p> <p>Design and implementation of a cloud application taking advantage of auto-scaling mechanisms</p>		
Work placement	Not applicable		