



Subject card

Subject name and code	Cloud Environment Management, PG_00069812						
Field of study	Informatics						
Date of commencement of studies	February 2026		Academic year of realisation of subject		2026/2027		
Education level	second-cycle studies		Subject group				
Mode of study	Full-time studies		Mode of delivery		at the university		
Year of study	1		Language of instruction		Polish		
Semester of study	2		ECTS credits		1.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Department of Computer Communications -> Faculty of Electronics Telecommunications and Informatics -> Faculties of Gdańsk University of Technology						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Krzysztof Gierłowski				
	Teachers		dr inż. Krzysztof Gierłowski				
			dr inż. Michał Hoeft				
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	0.0	0.0	0.0	15
	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	15		1.0		9.0	25
Subject objectives	Public and private clouds are a very specific type of network computing systems, both in terms of offered functionality and involved mechanisms. Such type of system requires a specific knowledge and skills from its designer and administrator. The course aims to provide students with characteristics of cloud systems, their elements, architectures and services commonly provided, complete with their deployment modes. Additionally, management and maintenance and orchestration methods appropriate for a cloud environment will be addressed.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K7_W03] knows and understands, to an increased extent, the construction and operating principles of components and systems related to the field of study, including theories, methods and complex relationships between them and selected specific issues - appropriate for the curriculum		1. Student identifies characteristics of cloud systems including its advantages, drawbacks, and requirements it poses to devices and operating systems. 2. Student identifies basic building blocks of a cloud system. 3. Student describes interfaces between elements of a cloud system.		[SW1] Assessment of factual knowledge		
	[K7_W10] knows and understands, to an increased extent, the basic processes occurring in the life cycle of equipment, objects and technical systems, as well as methods of supporting processes and functions, specific to the field of study		Student knows and can describe characteristics of cloud management solutions and effective methods of their employment.		[SW1] Assessment of factual knowledge		

Subject contents	Course content – lecture		
	Introduction to cloud environment		
	1. Definition of common terms, 2. Basic characteristics, 3. Deployment models, 4. Service models, 5. Enabling technologies, 6. Infrastructure elements, 7. Specialized cloud mechanisms, 8. Basic architectures.		
	Virtualization techniques		
	1. Overview of virtualization types 2. Containers and related mechanisms		
	Management tools and mechanisms		
	1. Vagrant dynamic management of virtual machines, 2. Docker dynamic management of containers, 3. Popular management and orchestration solutions: Puppet, Chef, Saltstack, Ansible 4. OpenStack and its architectural elements		
	Employment of SDN and OpenFlow in cloud environment.		
	Prerequisites and co-requisites		
	Theoretical knowledge and practical skills related to IP network configuration and management, as well as configuration and management of popular services deployed in their environment.		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Written test	50.0%	100.0%
Recommended reading	Basic literature	Lecture presentations.	
	Supplementary literature	Zaigham Mahmood, Thomas Erl, Ricardo Puttini, Cloud Computing: Concepts, Technology & Architecture, 2013	
	eResources addresses		
Example issues/ example questions/ tasks being completed	None		
Practical activities within the subject	Not applicable		

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