

Subject card

Subject name and code	DevOps and Microservices, PG_00156488						
Field of study	Information Science and Econometrics						
Date of commencement of studies	October 2024		Academic year of realisation of subject		2024/2025		
Education level	postgraduate studies		Subject group		Obligatory subject group in the field of study		
Mode of study	full-time studies		Mode of delivery		at the university		
Year of study	1		Language of instruction		Polish Polish		
Semester of study	2		ECTS credits		8.0		
Learning profile	academic		Assessment form				
Conducting unit							
Name and surname of lecturer (lecturers)	Subject supervisor		mgr Piotr Porzuczek				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	60.0	0.0	0.0	75
	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	75		30.0		95.0	200
Subject objectives	- To familiarize students with the DevOps philosophy and its impact on application development and deployment processes. - To acquire the ability to automate processes using tools such as Jenkins. - To implement Continuous Integration, Continuous Deployment and Continuous Testing methodologies. - To learn and practically apply concepts such as Infrastructure as Code, chaos engineering, immutable infrastructure and shift left security. - Application of Agile methodologies in DevOps processes.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[liEMU2_K05] The student can think and act in an entrepreneurial manner and flexibly adapt to changing environmental conditions. Thinks creatively and can go beyond the usual patterns.	liE1_K05: He thinks and acts in an entrepreneurial way, adapting to the changing conditions of the environment .	[SK5] implementation of a problem task
	[liEMU2_W04] The student has an in-depth knowledge of advanced mathematical, statistical, econometric and IT methods that enable the acquisition, processing and analysis of data reflecting the functioning and growth of the national economy and its components, as well as the phenomena and processes occurring in their environment.	liE2_W04: Knows advanced mathematical methods , statistical and computer science methods used in the analysis of data on the economy and business processes .	[SW4] test/exam - oral or written
	[liEMU2_U04] The student is able to plan, design, and program information systems at an advanced level, supporting the operation of business entities.	liE2_U04: Can design and program IT systems to support the operation of business entities .	[SU4] test/exam - oral or written
	[liEMU2_U08] The student can analyse business needs and, as appropriate, configure and apply modern information and communication technologies in business management and business communication.	liE2_U08: Knows how to install, configure and use modern information technologies in management of enterprises .	[SU8] observation of student's independent or team work
	[liEMU2_K04] The student can work in a team, co-create it, effectively manage and supervise it; efficiently adapts his behavior and conduct to his role in it; is ready to take responsibility for the team and bear the consequences; understands the necessity of systematicity and consistency in action; is open to other team members and critical of himself.	liE2_K04: Able to work in a team, co-create and manage a group. Is open to cooperation and aware of the responsibility for the assigned tasks .	[SK4] test/exam - oral or written
Subject contents	Lectures: • Introduction to DevOps and its philosophy • Automation of application development and deployment processes • Continuous Integration (CI), Continuous Deployment (CD), Continuous Testing (CT) • Security in Jenkins • Infrastructure as Code, chaos engineering, immutable infrastructure • Practical application of DevOps in various industries (case studies) Labs: • Jenkins architecture and configuration • Extending Jenkins with plugins and scripts • Integrating Jenkins with Docker and version management tools • Test automation with Selenium • Infrastructure as code: Ansible • Chaos engineering and immutable infrastructure		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Laboratorium: ocena projektu	50.0%	50.0%
	Lecture: final test	50.0%	50.0%
Recommended reading	Basic literature	• Nicole Forsgren i in., <i>Przyspieszenie</i>, 2019 • Jose Manuel Ortega Candel, <i>Bezpieczeństwo kontenerów w DevOps</i>, 2021	
	Supplementary literature	• Jez Humble i in., <i>Ciągłe dostarczanie oprogramowania</i>, 2015	
	eResources addresses	Adresy na platformie eNauczanie:	
Example issues/ example questions/ tasks being completed	• Automating application development and deployment using Jenkins • Using Infrastructure as Code in team projects • Implementation of Agile methodologies in DevOps processes		
Work placement	Not applicable		

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