GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Operating Systems, PG_00038298			
Field of study	Automation, Robotics and Control Systems			
Date of commencement of studies	October 2025	Academic year of realisation of subject		2025/2026
Education level	second-cycle studies	Subject group		Specialty subject group Subject group related to scientific research in the field of study
Mode of study	Part-time studies	Mode of delivery		at the university
Year of study	1	Language of instruction		Polish
Semester of study	2	ECTS credits		2.0
Learning profile	general academic profile	Assessment form		exam
Conducting unit	Department Of Control Engineering -> Faculty Of Electrical And Control Engineering -> Wydziały Politechniki Gdańskiej			
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Robert Smyk		
	Teachers			

Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	10.0	0.0	10.0	0.0	0.0	20
	E-learning hours included: 0.0						
	Adresy na platformie eNauczanie:						

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	20	4.0	26.0	50

Subject objectives	The objective of the course is to introduce students to **Linux system administration, user management, data processing**, and the **basics of Bash programming**. Students will learn to utilize key system tools such as **grep, awk, sed**, as well as acquire skills in **managing Docker containers**. The course aims to develop both **theoretical knowledge** and **practical skills** in task automation and operating system administration.
	Specific Objectives: 1. Understanding the fundamentals of operating systems, with a focus on **Linux**. 2. Learning **user management**, permissions, and process control in Linux. 3. Mastering **data processing and search tools** (grep, awk, sed, find). 4. Introduction to **Bash scripting** and automation of system tasks. 5. Understanding key **system resource management** mechanisms. 6. Introduction to **containerization with Docker**, including creation, configuration, and management. 7. Hands-on exercises in **task automation and system administration**.

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K7_W02] has a structured knowledge of the application of information systems to improve the reliability, efficiency, speed and mobility of control and management systems	knows the role of the operating system as computer resource management software, it understands the functions of the basic modules included in the operating system	[SW2] Assessment of knowledge contained in presentation
	[K7_U12] can program and implement network applications with typical protocols	uses the basic utilities available in text mode and graphics mode to configure and administer the operating system	[SU1] Assessment of task fulfilment

Subject contents	
	1. **Fundamentals of Operating Systems structure, functions, and resource management mechanisms.** 2. **Linux System Administration user, process, and permission management.** 3. **Data Processing data search and manipulation tools (grep, awk, sed, find).** 4. **Bash Programming scripting for task automation.** 5. **System Management resource monitoring, file handling, task scheduling.** 6. **Containerization basics of Docker, container management and deployment.** 7. **Automation and Optimization efficient system management and administrative scripting.**
Prerequisites and co-requisites	Knowledge of basic concepts and skills acquired during the computer science course. Basic knowledge of programming.

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Periodic Reporting	60.0%	80.0%
	Rating of individual work during exercise	60.0%	20.0%

Recommended reading	Basic literature	1. A. Silberschatz, P. B. Galvin, Podstawy systemów operacyjnych, WNT, Warszawa 2006. 2. A. S. Tanenbaum, Systemy operacyjne. Wyd. 3, Helion, Gliwice 2010. 3. W. Stallings, Systemy operacyjne. Struktura i zasady budowy, PWN, Warszawa 2006. 4. K. Stencel, Systemy operacyjne, Wydawnictwo PJWSTK, Warszawa 2004. 5. K. Lal, T. Rak, Linux. Komendy i polecenia. Praktyczne przykłady, Helion, Gliwice 2010.
	Supplementary literature	1. Ł. Sosna, Linux. Komendy i polecenia. Wyd. 3, Helion, Gliwice 2010. 2. W. Stanisławski, D. Raczyński, Programowanie systemowe mikroprocesorów rodziny x86, PWN, Warszawa 2010. 3. B. Goodheart, J. Cox, Sekrety magicznego ogrodu. UNIX System V Wersja 4 od środka. Podręcznik, WNT, Warszawa 2001.
	eResources addresses	

Example issues/ example questions/ tasks being completed	Understanding the principles of working in the Linux command line. Preparation of the basic configuration. Basics of Linux firewall configuration. Administration and management of the basic system services.
Work placement	Not applicable

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