



Subject card

Subject name and code	Operating Systems, PG_00058925						
Field of study	Informatics						
Date of commencement of studies	October 2026	Academic year of realisation of subject			2026/2027		
Education level	first-cycle studies	Subject group			Obligatory subject group in the field of study 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			English		
Semester of study	2	ECTS credits			5.0		
Learning profile	general academic profile	Assessment form			exam		
Conducting unit	Department of Software Engineering -> Faculty of Electronics Telecommunications and Informatics -> Faculties of Gdańsk University of Technology						
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Michał Wróbel					
	Teachers	dr inż. Michał Wróbel dr inż. Marcin Pazio					
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	15.0	0.0	0.0	30
	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	30		6.0		89.0	125
Subject objectives	To familiarize students with the basics of operating systems, including file system, processes, and hardware management. Presentation of the basic commands and shell language structures.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	<p>[K6_W44] knows and understands, to an advanced extent, architecture, design principles and methods of hardware and software support for local and distributed information systems, including computing systems, databases, computer networks and information applications, as well as the principles of human-computer interaction, the operation and evaluation criteria of data processing, storage and transfer methods, including computational algorithms, artificial intelligence and data mining as well as standards and methods of IT systems administration, monitoring of processes and robustness to undesirable phenomena and activities</p>		
	<p>[K6_U03] can design, according to required specifications, and make a simple device, facility, system or carry out a process, specific to the field of study, using suitable methods, techniques, tools and materials, following engineering standards and norms, applying technologies specific to the field of study and experience gained in the professional engineering environment</p>	<p>Student distinguishes text processing programs. Student tests bash scripts.</p>	<p>[SU1] Assessment of task fulfilment</p>
	<p>[K6_W03] knows and understands, to an advanced 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</p>	<p>Student classifies operating system processes.</p>	<p>[SW1] Assessment of factual knowledge</p>

Subject contents

Course content – lecture

1. Operating system goals and definitions.
2. Operating system concept and its structural model
3. File concept system and its elements
4. I-node structure and its elements
5. File system, directory tree structure
6. Mounting and file system dynamic modification rules
7. Hard and symbolic links creation
8. Process model and implementation, fork function
9. Standard input/output, redirection rules, pipe function
10. Process and thread management
11. Context change, multiprocessing
12. Task scheduler, queues, preemptive multitasking
13. Processor time management
14. Starvation and deadlock problems
15. Access to resources problems, dining philosophers problem
16. Disks and RAM memory management
17. Demand paging
18. Resource security, defenses mechanism
19. Shell properties and tasks
20. Basic shell commands: test, grep, getopt
21. Text manipulation programs: awk, sed
22. Programming in bash language, script role
23. Script writing guidelines, parameters control
24. Operating system services
25. Operating system installation and configuration

	<p>26. Operating system administration issues</p> <p>27. Basic properties of the MS Windows operating system</p> <p>28. Domain administration on the MS Windows server</p> <p>29. Open Source and Free Software issues</p> <p>30. Linux features, its distribution, cdlinux.pl</p>		
Prerequisites and co-requisites	No requirements		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Written exam	50.0%	50.0%
	Practical exercise	50.0%	50.0%
Recommended reading	Basic literature	<p>1. Silberschtz A. ed. : Podstawy systemów operacyjnych, PWN, 1991,</p> <p>2. Prata S.: Biblia systemu UNIX V, LT&P, 1994,</p> <p>3. Southerton A. ed. : Słownik poleceń systemu UNIX, WNT, 1995,</p> <p>4. Nemeth E. ed. : Przewodnik administratora systemu UNIX, NT, 1998,</p> <p>5. Kaczmarek J.: Szkoła systemu Linux, Helion, 2007.</p>	
	Supplementary literature	No requirements	
	eResources addresses		
Example issues/ example questions/ tasks being completed			
Practical activities within the subject	Not applicable		

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