GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Operating Systems, PG_00047649		
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	Full-time studies	Mode of delivery	blended-learning
Year of study	1	Language of instruction	Polish
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. Adam Kaczmarek mgr inż. Olga Błaszkiewicz mgr inż. Piotr Sokołowski mgr inż. Michał Sieczczyński	

Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	30.0	0.0	0.0	60
	E-learning hours included: 8.0						

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	60	5.0	60.0	125

Subject objectives	The aim of the course is 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
[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	The student can manage the Linux operating system.	[SW1] Assessment of factual knowledge
[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	The student knows and is able to use text processing programs. She or he Is able to design, implement and test shell scripts	[SU1] Assessment of task fulfilment [SU3] Assessment of ability to use knowledge gained from the subject
[K6_W04] knows and understands, to an advanced extent, the principles, methods and techniques of programming and the principles of computer software development or programming devices or controllers using microprocessors or programmable elements or systems specific to the field of study, and organisation of systems using computers or such devices	The student knows the basic architectures of computer systems. She/he understands the concept of processes, file systems, memory management and scheduling tasks.	[SW1] Assessment of factual knowledge [SW3] Assessment of knowledge contained in written work and projects

Subject contents

Course content – lecture

1. Operating system goals and definitions.
2. Operating system concept and its structual model
3. File concept system and its elements
4. File system, directory tree structure
5. Process model and implementation, fork function
6. Standard input/output, redirection rules, pipe function
7. Process and thread management
8. Context change, multiprocessing
9. Task scheduler, queues, preemptive multitasking
10. Disks and RAM memory management
11. Demand paging
12. Resource security, defenses mechanism
13. Shell properties and tasks
14. Basic shell commands
15. Text manipulation programs
16. Programming in bash language, script role
17. Script writing guidelines, parameters control
18. Operating system installation and configuration
19. Linux features, its distribution

Prerequisites and co-requisites

No requirements

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
laboratory	50.0%	50.0%
eCourse	50.0%	10.0%
exam	50.0%	40.0%

Recommended reading	Basic literature	1. Silberschtz A. ed. : Operating System Concepts, Wiley, 2021, 2. Albing C., Vossen JP: bash Cookbook: Solutions and Examples for bash Users, 2017,
	Supplementary literature	1. Nemeth E. ed. : Przewodnik administratora systemu UNIX, NT, 1998, 2. Kaczmarek J.: Szkoła systemu Linux, Helion, 2007.
	eResources addresses	
Example issues/ example questions/ tasks being completed	1. Linux administration 2. Bash scripts writing 3. Scheduling 4. Memory management	
Practical activites within the subject	Not applicable	

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