GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Operating Systems, PG_00047827		
Field of study	Informatics		
Date of commencement of studies	October 2020	Academic year of realisation of subject	2021/2022
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	2	Language of instruction	English
Semester of study	4	ECTS credits	4.0
Learning profile	general academic profile	Assessment form	exam
Conducting unit	Department of Software Engineering -> Faculty of Electronics, Telecommunications and Informatics		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Michał Wróbel	
	Teachers	dr inż. Michał Wróbel dr inż. Marcin Pazio	

Lesson types and methods of instruction	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						
	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	30	4.0	66.0	100

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
	[K6_W43] Knows and understands, to an advanced extent, standards and methods of IT systems administration, monitoring of processes occurring in them and immunising them to undesirable phenomena and activities	Student knows operating system architecture. Student defines file system properties. Student describes disks and RAM memory menagement.	[SW1] Assessment of factual knowledge
	[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	Student classifies operating system processes.	[SW1] Assessment of factual knowledge
	[K6_U42] can apply tools and methods of designing, optimization, monitoring, management, increasing reliability and protection from safety hazards in local and distributed information systems and applications	Student understands access policy to system resources.	[SU5] Assessment of ability to present the results of task
	[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	Student distinquishes text processing programs. Student tests bash scripts.	[SU1] Assessment of task fulfilment
	[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	Student creates shell scripts.	[SW3] Assessment of knowledge contained in written work and projects

Subject contents	1. Operating system goals and definitions. 2. Operating system concept and its structual 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, getopts 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

	26. Operating system administration issues 27. Basic properties of the MS Windows operating system 28. Domain administration on the MS Windows server 29. Open Source and Free Software issues 30. Linux features, its distribution, cdlinux.pl
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	1. Silberschtz A. ed. : Podstawy systemów operacyjnych, PWN, 1991, 2. Prata S.: Biblia systemu UNIX V, LT&P, 1994, 3. Southerton A. ed. : Słownik poleceń systemu UNIX, WNT, 1995, 4. Nemeth E. ed. : Przewodnik administratora systemu UNIX, NT, 1998, 5. Kaczmarek J.: Szkoła systemu Linux, Helion, 2007.
Supplementary literature	No requirements
eResources addresses	

Example issues/ example questions/ tasks being completed	
Work placement	Not applicable