



(faculty stamp)

COURSE DESCRIPTION

1. Course title: OPERATING STSTEMS		2. Course code: OS		
3. Validity of course description: 2018/2019				
4. Level of studies: BA, BSc programme				
5. Mode of studies: INTRAMURAL STUDIES				
6. Field of study: INFORMATICS				
7. Profile of studies: comprehensive				
8. Programme: ALL				
9. Semester: IV, V				
10. Faculty teaching the course: Faculty of Automatic Control, Electronics and Computer Science				
11. Course instructor: Błażej Adamczyk Laboratory course instructor: Aleksandra Gruca				
12. Course classification: common courses				
13. Course status: obligatory				
14. Language of instruction: English				
15. Pre-requisite qualifications: Theory of computer science, Fundamentals of computer programming				
16. Course objectives: The goal of the course is to introduce students into the subject of modern operating systems that are considered as robust resource management environment and user interface layer. During this course students will obtain the basic knowledge on configuring and administering of operating systems and solving classical resource management problems with a particular focus on processor and memory related tasks.				
17. Description of learning outcomes:				
Nr	Learning outcomes description	Method of assessment	Teaching methods	Learning outcomes reference code
1	Student acquires knowledge of fundamentals on general purpose operating systems	exam, final test	lecture	K1A_W10 K1A_W11 K1A_W14 K1A_W16
2	Student acquires practical knowledge about Linux and Windows operating systems	laboratory task	laboratory	K1A_U08 K1A_U21 K1A_U29
3	Student acquires knowledge and basic skills in installation and configuring operating systems	laboratory tasks	laboratory	K1A_U19 K1A_U21
4	Student acquires knowledge and basic skills in administering operating systems and managing its resources	laboratory tasks	laboratory	K1A_U19 K1A_U21
5	Student acquires knowledge and basic skills in reading reference literature and technical documentation	laboratory tasks	laboratory	K1A_U01
18. Teaching modes and hours				
Lecture	Classes	Laboratory	Project	BA/MA Seminar
30	-	30	-	-

**19. Syllabus description:****Lectures:**

Topics are related to the general purpose operating systems and to the general problems present in any kind of modern operating systems:

1. Basic operating systems concepts such as definition and fundamental functionality, efficiency criteria, processes, resources, types and architectures of operating systems
2. Structure of operation systems, kernel, drivers, tools, subsystems, interfaces and utilities
3. Resource and process management: inter-process communication (IPC), concurrency, interference, mutual exclusion, process synchronization and communication means, semaphores, mailboxes
4. Algorithms and mechanisms of CPU time sharing
5. Memory organization and allocation, virtual memory, memory protection
6. I/O devices management in operating systems
7. File systems – physical and logical representation
8. Hard disk head movement planning
9. Fundamental concepts of real-time and distributed operating systems
10. Description of Windows and Linux operating systems

Laboratory:

1. Linux - installation and basic configuration
2. Linux - users, groups and permissions
3. Linux - basics of bash programming
4. Linux - software management
5. Linux - network configuration
6. Linux - processes
7. Windows - installation
8. Windows - users, groups and permissions
9. Windows - basic configuration
10. Windows - network configuration
11. Windows - system services
12. Windows - remote access

20. Examination: yes (written)**21. Primary sources:**

1. A. Silberschatz,, P. B. Galvin, G. Gagne: Operating System Concepts. Wydanie 10, Wiley, 2018.
2. A. Silberschatz, P.G.Galvin, G. Gagne: Podstawy Systemów Operacyjnych. Wydanie 7, WNT, Warszawa 2006 (język polski)
3. A. S. Tanenbaum, H. Bos: Modern Operating Systems. Wydanie 4, Prentice-Hall Inc., 2015.
4. W. R. Stevens: Programowanie w środowisku systemu UNIX. WNT, Warszawa 2014.
5. W. Stallings: Systemy operacyjne. Struktura i zasady budowy. Wydawnictwo Naukowe PWN, 2006.

22. Secondary sources:

1. Ł. Sosna: Linux. Komendy i polecenia. Helion, 2014
2. D. P. Bovet i M. Cesati, Understanding the Linux Kernel. O'Reilly Media, Inc., 2005
3. H. Tsuji, T. Watanabe: Linux Internet Server. Czarna księga, Acrobyte, Helion, 2001
4. T. Parker: Linux. Księga eksperta. Helion, 1999
5. Linux manual
6. E.Bott, C. Siechert, C. Stinson: Windows 10 Inside Out, Second Edition. Microsoft Press, 2016
7. A. Podstawczyński: Linux. Praktyczne rozwiązania. ISBN: 83-7197-326-8
8. Internet documentation, np.: debian.org, linuxquestions.org



23. Total workload required to achieve learning outcomes

Lp.	Teaching mode :	Contact hours / Student workload hours
1	Lecture	30/20
2	Classes	-/-
3	Laboratory	30/30
4	Project	-/-
5	BA/ MA Seminar	-/-
6	Other	10/10
	Total number of hours	70/60

24. Total hours: 130

25. Number of ECTS credits: 5(3 - sem.4; 2 - sem.5)

26. Number of ECTS credits allocated for contact hours: 3

27. Number of ECTS credits allocated for in-practice hours (laboratory classes, projects): 2

26. Comments:

Approved:

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 (date, Instructor's signature)

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 (date, the Director of the Faculty Unit signature)