

(faculty stamp)

COURSE DESCRIPTION

1. Course title: OPERATING SYSTEMS		2. Course code: OS		
3. Validity of course description: 2017/2018				
4. Level of studies: engineer(undergraduate)				
5. Mode of studies: INTRAMURAL STUDIES				
6. Field of study: Macrofaculty				
7. Profile of studies: general academic				
8. Programme:				
9. Semester: VI				
10. Faculty teaching the course: Faculty of Automatic Control, Electronics and Computer Science				
11. Course instructor: dr inż Przemysław Skurowski				
12. Course classification: common courses				
13. Course status: obligatory				
14. Language of instruction: English				
15. Pre-requisite qualifications: Theory of computer science, Computer programming				
16. Course objectives: The goal of a course is to introduce students into the cotemporary operating systems which are considered as environments of effective resource managing environment and user interface layer in modern computer systems. During the course students will get knowledge on configuring and administering of operating systems and on the solutions of classical resource management problems with special 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 on fundamentals on general purpose operating systems	Exam	Lecture	K1A_W14
2	Student acquires practical knowledge on Linux and Windows operating systems	Exam	Lecture	K1A_U21
3	Student acquires knowledge and basic skills in installation and configuring operating systems	Laboratory tasks	Laboratory	K1A_U21
4	Student acquires knowledge and basic skills in administering and managing operating systems	Laboratory tasks	Laboratory	K1A_U21
5	Student acquires knowledge and basic skills in reading reference literature and technical documentation	Laboratory tasks	Laboratory	K1A_U03
18. Teaching modes and hours Lecture / BA /MA Seminar / Class / Project / Laboratory 30/ - / - / - / - / 30				
19. Syllabus description: Lectures: Topics are related to the general purpose OS and to the general problems present in any kind of OS:				

1. Basic concepts in OS topic: definition and fundamental roles, effectiveness criteria, processes, re sources, types and architectures of OS
2. OS structure – kernel, drivers, tools, subsystems, interfaces and utilities.
3. Resource management and Inter process communication (IPC), concurrency, interference, mutual ex clusion, process synchronization and communication means, semaphores, mailboxes
4. Algorithms and mechanisms of a CPU time sharing
5. Memory organization and allocation, virtual ,memory, memory protection
6. I/O devices handling in the OS
7. File systems – physical and logical representation
8. Hard disk head movement planning
9. Basics or realtime and distributed OS
10. Description of Windows and Linux OS

Laboratory:

- Windows 7 – Installation
- Windows 7 – Administrative scripts
- Windows 7 – Users, groups, permissions
- Windows 7 – Basic network
- Windows 7 – System services
- Windows 7 – Remote access
- Linux – Installation and configuration basics
- Linux – Users, groups, permissions
- Linux – Processes
- Linux – Basic network
- Linux – multi system collaboration
- Linux – Fundamentals of Bash programming

20. Examination: yes (written)

21. Primary sources:

1. A. Silberschatz, J.L. Peterson, G. Gagne, Operating Systems Concepts, Wiley
2. W. Stallings, Operating Systems. Pearson
3. A. S. Tanenbaum, Modern Operating Systems. ed 2, Prentice-Hall Inc., 2001.
4. W. R. Stevens, Advanced Programming in the UNIX Environment, Addison-Wesley, 1992

22. Secondary sources:

1. Linux Internet Server. Czarna księga, H. Tsuji, T. Watanabe, Acrobyte, Helion 2001
2. Linux. Księga eksperta, T. Parker, Helion 1999
3. Dokumentacja systemu Linux – manual
4. M. Tulloch et al. Windows 7, Resource Kit
5. Opcjonalnie: Dokumentacja w internecie, np.: www.jtz.org.pl, www.linuxpl.org, ubuntu.pl
6. Opcjonalnie: Tim Parker „Linux. Księga eksperta”, ISBN: 83-7197-075-7
7. Opcjonalnie: Adam Podstawczyński „Linux. Praktyczne rozwiązania”, ISBN: 83-7197-326-8
8. Online. MS Webcasts. www.microsoft.com/events/webcasts/

23. Total workload required to achieve learning outcomes		
Lp.	Teaching mode :	Contact hours / Student workload hours
1	Lecture	30/30
2	Classes	
3	Laboratory	30/30
4	Project	
5	BA/ MA Seminar	
6	Other	15/15
	Total number of hours	75/75
24. Total hours: 150		
25. Number of ECTS credits: 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)