

<i>Title</i> Operating systems	
<i>Course code</i>	IVB186MA
<i>Allotment of Hours (weekly) lecture/practice/lab</i>	2/0/2
<i>Credit</i>	4
<i>Major</i>	Computer Science Engineering
<i>Evaluation</i>	examination
<i>Announced starting from</i>	2018/19 spring semester
<i>Prerequisites</i>	Computer Architectures I.
<i>Department(s) involved</i>	Department of System- and Software Technology
<i>Course responsible and lecturer(s)</i>	Anett NAGYVÁRADI, Zsolt SCHÄFFER

LEARNING OUTCOMES, OBJECTIVES

To learn the working principles of operating systems serves as a base for understanding the concept of multi-programming, the workings and isolation of processes and the accounting and management functions of an operating system. Acquiring this knowledge is an important milestone for other subjects, like for e.g. understanding some programming paradigms, or server operations and maintenance.

CONTENTS

Short description: The following topics will be discussed during the semester.

Topics covered on Lectures:

1. Definition and history of operating systems. Structures, system calls.
2. Processes, threads, inter-process communication.
3. Filesystems.
4. Process scheduling.
5. Management of deadlocks.
6. Memory management, allocation strategies.
7. Virtual memory, paging, swapping, segmentation.
8. Input/Output, interrupts, DMA, disk scheduling.

Topics covered on lab practices:

1. Terminals, shell, pipes.
2. Directory structure and special files in Linux.

3. File operations.
4. Terminal text editors (vi, nano, mcedit).
5. Users, group and file privileges.
6. Process management, sending signals
7. Creating and mounting filesystems and swap
8. The boot procedure of Linux
9. Package management
10. Regular expressions
11. Bash scripting

EVALUATION AND GRADING

Attendance:

Required to attend at least 70% of sessions.

Acquiring the signature for course fulfillment:

- Pass the mid-term test with a minimum of 65% performance.
- Submit all the homework with at least 80% correct solutions.

Exam:

- The written exam starts with entry-questions. A 100% of correct answers is required to continue with the exam.
- The exam is successful if at least 50% is achieved in the main part of the exam.

Grading scale: The ultimate score is calculated from the following parts: 20% weight for the mid-term tests, 10% weight for homework and 70% of weight for the written exam that concludes the course. The weighted performance value is converted to a grade based on the following ranges:

$0\% \leq x < 56\%$	fail (1)
$56\% \leq x < 67\%$	satisfactory (2)
$67\% \leq x < 78\%$	average (3)
$78\% \leq x < 89\%$	good (4)
$89\% \leq x < 100\%$	excellent (5)

LITERATURE AND SUGGESTED READING MATERIAL

- [1st] Andrew S. TANENBAUM: Modern Operating Systems; ISBN 9780136006633
- [2nd] Thomas ANDERSON, Michael DAHLIN: Operating Systems, Principles and Practice; ISBN 9780985673529
- [3rd] David A. SOLOMON: Windows Internals 7th Edition; ISBN 9780735684188
- [4th] SILBERSCHATZ, GALVIN, GAGNE: Operating systems concepts; ISBN 9780470128725

SCHEDULE

		STUDY PERIOD, LECTURE WEEKS															EXAM PERIOD									
2018/2019. SPRING SEMESTER		1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	1.	2.	3.	4.	5.					
Lecture topic number			1.	2.	2.	3.	4.	4.	5.	6.		7.	7.	8.	8.				Acquiring signature or mid-term grade not possible anymore							
Lab topic number			1.	2.	3.	4.	5.	6.	7.	8.		9.	10.	11.	11.											
Tests		~5 occasions, randomly chosen																								
Homework	assignment	continuously, week-by-week																								
	submission	continuously, two weeks after assignment																								
Reports	submission																									
Others																										
Get the course fulfillment signed																	re-take test	re-take test						re-take test		
Planned dates/number of exams																	1	1						1	1	1

2019.02.04.

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Course responsible