

Obuda University John von Neumann Faculty of Informatics		Cyberphysical Systems Institute		
Name and code: Operating Systems, NIEORIEBNE		Credits: 5		
<i>2022/23 year I. semester</i>				
Subject lecturers: Abdallah Benhamida				
Prerequisites (with code):		Computer Networks		
Weekly hours:	Lecture: 2	Seminar:	Lab. hours: 3	Consultation:
Way of assessment:	Written Exam			
Course Description:				
<p><i>Goal:</i> During the semester the students get to know the main tasks of the operating systems, the parts of the operating systems, and the different implementation possibilities of each part. During the semester we are using real-world examples from today's most popular operating systems.</p>				
<p><i>Course Description:</i></p> <ul style="list-style-type: none"> • Introduction The purpose of operating Systems. A short history of the operating systems. Introduction to Windows, Linux, and Solaris operating systems. • Architecture of the operating systems The black box model of the operating systems Different types of interfaces: API, different types of user interfaces, hardware interface • Implementation of operating systems Processes and threads Scheduling Memory management I/O management, file systems Inter-process Communications • Virtualization 				
Lecture schedule				
<i>Education week</i>	<i>Topic</i>			
1.	<i>Introduction. Purpose of operating systems. A short history of operating systems. Features of today's operating systems.</i>			
2.	<i>A short introduction to Windows, Linux, and Solaris operating systems</i>			
3.	<i>Processes</i>			
4.	<i>Threads. The implementation models of operating system's kernel</i>			
5.	<i>CPU scheduling</i>			
6.	<i>Interprocess Communications and synchronization. Race conditions. Deadlock situations.</i>			
7.	<i>Memory management before the virtual memory era.</i>			
8.	<i>Virtual memory management. Managing the kernel's memory.</i>			
9.	<i>I/O management</i>			
10.	<i>Disc management, RAID</i>			
11.	<i>Break</i>			
12.	<i>File systems</i>			
13.	<i>Virtualisation</i>			
14.	<i>Retrospection</i>			

Midterm requirements

The written test has to be passed, and the project work has to be documented and presented (both of them must be over 50%).

<i>Education week</i>	<i>Topic</i>
11	Midterm test
13	Home Project presentations
14	Midterm / Home Project retake

Final grade calculation methods

Max. 10 points from midterm test (must be over 50%)

Max. 30 points from the student project (must be over 50%)

Max. 70 points from the written exam (must be over 50%)

Achieved result	Grade
91-110 points	excellent (5)
81-90 points	good (4)
71-80 points	average (3)
51-70 points	satisfactory (2)
-50 points	failed (1)

Type of exam

written

Type of replacement

written

References

Mandatory:

none

Recommended:

- Operating Systems: Internals and Design Principles by William Stallings
- Operating System Concepts by Abraham Silberschatz, Peter B. Galvin and Greg Gagne
- Modern Operating Systems by Andrew S. Tanenbaum and Herbert Bos
- Windows Internals by Mark Russinovich, David Solomon and Alex Ionescu
- Systems Performance: Enterprise and the Cloud by Brendan Gregg