Lahore University of Management Sciences

CS370 – Operating Systems

Fall 2018

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Course URL (if any)	

Course Basics				
Credit Hours				
Lecture(s)	Nbr of Lec(s) Per Week	2	Duration	75 minutes
Recitation/Lab (per week)	Nbr of Lec(s) Per Week		Duration	
Tutorial (per week)	Nbr of Lec(s) Per Week		Duration	

Course Distribution	
Core	
Elective	
Open for Student Category	
Close for Student Category	

COURSE DESCRIPTION
This course introduces the fundamental concepts of operating system design and implementation. The course aims at providing an understanding of how operating system enables interaction between user-level applications and the underlying system hardware. The concepts in this course are not limited to any particular operating systems or hardware platform. We will discuss examples that are drawn from different operating systems including Unix/Linux, Windows, and Android. The course lectures will be accompanied by several projects (programming assignments) that form or depend on much of the core functionality in modern operating systems. These projects will provide students a practical exposure to topics such as processes/threads, file systems, and memory management.

COURSE PREREQUISITE(S)	
•	Data Structures

COURSE OBJECTIVES	
•	Study the fundamental concepts of operating system design and implementation.
•	Understand the interaction between user-level applications and the underlying operating system.
•	Practical exposure to operating system topics such as processes/threads, file systems, and memory management.

Learning Outcomes	
•	Basic understanding of operating systems design and implementation.
•	Practical exposure to operating system topics such as processes/threads, file systems, and memory management.

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Grading Breakup and Policy
Assignment(s): 28% (Programming assignments) Home Work: Quiz(s): 12% Class Participation: Attendance: Midterm Examination: 25% Project: Final Examination: 35%

Examination Detail	
Midterm Exam	Yes/No: Yes Combine Separate: Duration: 75 minutes Preferred Date: Exam Specifications:
Final Exam	Yes/No: Yes Combine Separate: Duration: 3 hours Exam Specifications:

Course Overview

Lecture	Topics	Recommended Readings (From main text book)
1	Course Introduction	Chapter 1
2	Operating System Structures	Chapter 2
3	Introduction to processes and threads	Chapters 3 and 4
4		
5	Inter-process communication	
6		
7	Process synchronization (semaphores,mutexes, barriers)	Chapter 6
8		
9		
10	Scheduling	Chapter 5
11		
12	Deadlock	Chapter 7
13		
14	Introduction to memory management	Chapter 8
15	Memory abstraction: address spaces	
16	**Midterm**	
17	Virtual memory	Chapter 9
18		
19		
20		
21		

22	File systems	Chapters 10 and 11
23		
24		
25	Input/output devices	Chapter 13
26		
27	Protection and security	Chapters 14 and 15
28	Vitualization	

Textbook(s)/Supplementary Readings

Main text book
Operating System Concepts – 9th Edition. Avi Silberschatz, Peter Baer Galvin , Greg Gagne. John Wiley & Sons, Inc.

Reference
Modern Operating Systems – 3rd Edition, Andrew S. Tanenbaum, Prentice Hall, 2008.