

Course Outline

1. Document Information

Degree Program	Computer Science
Course Number	CS 335
Course Title	Operating System
Semester Hours	3
Course Coordinator	Khaled Ahmed
Revision Term	Spring 2020
Latest Revision	Fall 2020

2. Catalog Description

An extended treatment of the components of operating systems including process management, concurrency, memory management, device management, file management, and security.

3. Textbooks

- Silberschatz, A. (2013). *Operating Systems Concepts*, Wiley, 9th Edition. ISBN: 978-1118063330.

4. References

5. Course Learning Outcomes

- To learn the different components of a modern operating system.
- To design or simulate various modules of an operating system.

6. Assessment of the Contribution to Student Outcomes

Outcome	1	2	3	4	5	6
Assessed	X	X			X	X

7. Prerequisites by Topic

CS 220 and CS 221 with a grade of C or better or consent of the instructor.

8. Major Topics Covered in the Course

1. Introduction: mainframe, desktop, multiprocessor, distributed, clustered and real-time systems {3 classes}
2. Process management: job and process scheduling, race conditions, deadlock, mutual exclusion, concurrency problems including critical regions and their different solutions, parallel machine environment {9 classes}
3. Memory management: dynamic partitioning, paging, demand paging, segmentation, thrashing {9 classes}
4. Device management: device characteristics, scheduling, traffic control, device handling {8 classes}
5. File management: file structures, directories, protection {8 classes}
6. Security: authentication, intrusion detection, etc. {3 classes}