

**University of Technology**  
**Computer Engineering Department**  
**Academic Year 2023 - 2024**  
**Second Year – First Semester - Network Branch**



<b>CE-CN231</b>	<b>Fundamentals of Operating Systems</b>	<b>2 Hours/Week</b>	<b>2 Units</b>
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<b>Contents of Syllabus</b>	<b>Hours</b>
<b>Introduction</b> What Operating Systems Do Computer-System Organization Operating-System Structure Process Management Memory Management Storage Management Open-Source Operating Systems	4
<b>Operating-System Structures</b> Operating System Services User and Operating-System Interface System Calls Types of System Calls System Programs Operating System Structure	4
<b>Processes</b> Process Concept Process Scheduling Operations on Processes Interprocess Communication	4
<b>Threads</b> Overview Multicore Programming Multithreading Models	2
<b>Process Synchronization</b> Background The Critical-Section Problem Peterson's Solution Semaphores Deadlocks	6

Deadlock Characterization Resource-Allocation Graph Methods for Handling Deadlocks	
<b>CPU Scheduling</b> Basic Concepts Scheduling Criteria Scheduling Algorithms	4
<b>Main Memory</b> Background Swapping Contiguous Memory Allocation Segmentation Paging	6

## References

1. Operating System Concepts Essentials, by Abraham Silberschatz, Peter Baer Galvin, Greg Gagne, 2nd edition, 2014, Wiley press.
2. Operating System Concepts, by Abraham Silberschatz, Peter Baer Galvin, and Greg Gagne, 9th edition, 2013, Wiley press.

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