Course Name: Operating Systems   **Course Code: COMP333**

General Information					
Course Code	**COMP333**	**Level/Year**	**6/3**	**Required (R) / Selected Elective (SE)**	**R**
Credit Hours	**Theory**	**2**	**Lab**	**1** **Total**	**3**
Prerequisites	**COMP213**	**Course Coordinator**		Mr. Syed Ziauddin	
Corequisites	**Nil**				

Course Description
This course introduces a detailed description about operating system objectives, functions and core concepts. Topics include operating system overview, processes and threads, CPU scheduling algorithms, synchronization, deadlocks, memory management and file management systems

Course Objectives : On completion of the course, the student will be able to:

- Discuss the basic concepts underlying under operating systems as well as how a typical operating system works and present the main concept behind traditional (non-distributed) operating systems.

- Identify the basic components of process, and contrast processes and threads

- Assess CPU scheduling algorithms based on scheduling criteria.

- Explain readers-writers, dining-philosopher and deadlocks problems.

- Analytically discuss the algorithms used in memory management and describe file management.

Course Contents

List of Topics
CH 1: Operating System Overview
CH 2: Processes and Threads
CH 3: CPU Scheduling
CH 4: Deadlocks
CH 5: Memory Management
CH 6: File Management

Textbook

- Operating System Concepts, 10th Edition 2018, by Abraham Silberchatz, Peter B. Galvin, Greg Gagne, ISBN: 9781119320913.

- Operating Systems – Internals and Design Principles, 9th Edition 2018, by William Stallings, Prentice Hall, ISBN-13: 978-9352866717.

Reference Materials

- Operating Systems – Three Easy Pieces, Remzi H. Arpaci-Dusseau and Andrea C. Arpaci-Dusseau, 2018, (Version 1.00), ISBN-13: 978-1985086593

- Modern Operating Systems, Andrew S. Tanenbaum, 2016, Pearson, 4th Edition, ISBN-10: 9789332575776.

Course Learning Outcomes

CLO#01	Explain the objectives, functions, and architectural evolution of modern operating systems.
CLO#02	Differentiate and compare key OS concepts including kernel types, processes, and threads.
CLO#03	Evaluate file organization methods and scheduling algorithms based on performance metrics
CLO#04	**Analyse** the potential run-time problems arising from the concurrent operation and their possible solutions.
CLO#05	Apply memory management techniques including paging, segmentation, and page replacement algorithms.
CLO#06	Work effectively in a team to implement OS algorithms and communicate their impact on society.