Course code	OPERATING SYSTEMS	L	T	P	J	C
xxxx		2	0	1	0	3
Pre-requisite	xxxxxxxx	Syllabus version				
		v. xx.xx				

Course Objectives:

- To provide a grand tour of the major operating system components.
- To gain knowledge in process, memory and device management
- To apply and design the procedure used for concurrency and memory management.
- To categorize the levels of abstraction in a computer system.

Expected Course Outcome:

- Differentiate between the user and kernel mode operations and describe the use of semaphores, interrupts, context switching
- Understand and apply the concepts of CPU scheduling, synchronization and deadlocks in real computing problems.
- Analyze and investigate the local and global impacts of operating systems in developing any computer based applications.

Student Learning Outcomes (SLO):	2, 14, 17

Module:1	INTRODUCTION	9 hours	SLO: 2,17

Overview – Components - Services – Functionalities - Structuring methods – System Calls – System/Application Call Interface - Interrupts – Processes – Process Scheduling - Threads

Module:2	PROCESS SYNCHRONIZATION	9 hours	SLO: 14,17

Inter-process communication – Critical-Section Problem – Synchronization Hardware – Semaphores – Classic Synchronization problems – Deadlocks.

Module:3	STORAGE MANAGEMENT	9 hours	SLO: 2,14

Main memory management - Logical and Physical address space – Memory allocation strategies – virtual memory – Page replacement algorithms.

Module:4	FILE SYSTEM AND DISK MANAGEMENT	9 hours	SLO: 2,17

File System Interface - Implementation - Allocation Methods - Free space management - Disk Scheduling.

Module:5	**CASE STUDY**	**9 hours**	**SLO: 2,14,17**
Case studies related to Windows, Linux, Mac and Mobile OS			
	Total Lecture hours:	**45 hours**	

Text Book(s)

1.	Abraham Silberschatz, Peter Baer Galvin and Greg Gagne, "Operating System Concepts", John Wiley & Sons, 9th Edition, 2013.

Reference Books

1.	Harvey M. Deitel, Paul J. Deitel, David R. Choffnes, "Operating Systems", Pearson Education, 3rd Edition, 2006.
2.	Andrew S. Tanenbaum, "Modern Operating Systems", Prentice Hall, 3rd Edition, 2009.
3.	William Stallings, "Operating Systems: Internals and Design Principles", Prentice Hall, 7th Edition, 2012.

Mode of Evaluation:

List of Challenging Experiments (Indicative)		**SLO: 14,17**
1.	Experiment title	X hours
2.	Experiment title	X hours
3.	Experiment title	X hours
4.	Experiment title	X hours
5.	Experiment title	X hours
	Total Laboratory Hours	X hours

Mode of evaluation:

Recommended by Board of Studies	DD-MM-YYYY		
Approved by Academic Council	No. xx	Date	DD-MM-YYYY