OPERATING SYSTEMS LABORATORY

IV Semester: CSE / IT								
Course Code	**Category**	**Hours / Week**			**Credits**	**Maximum Marks**		
ACS106	**Foundation**	**L**	**T**	**P**	**C**	**CIA**	**SEE**	**Total**
		-	-	3	2	30	70	100
Contact Classes: Nil	**Tutorial Classes: Nil**	**Practical Classes: 36**				**Total Classes: 36**		

I. COURSE OVERVIEW:

This course provides a comprehensive introduction to operating system design concepts, data struc- tures and algorithms. The course is designed to provide in-depth critique on the problems of resource management and scheduling, concurrency and synchronization, memory management, file manage- ment, peripheral management, protection and security. This course is intended to discuss the topicsin a general setting not tied to any one particular operating system. Throughout the course, the study of practical aspects that pertain to the most popular operating systems such as Unix/Linux and Windows are considered as case studies.

II. OBJECTIVES:

The course should enable the students to:

I	The principles of operating systems, services and functionalities with its evolution.
II	The structures, functions and components of modern operating systems
III	The conventional hardware at different OS abstraction levels.
IV	The essential skills to examine issues and methods employed in design of operatingsystems with identification of various functionalities.

III. COURSE OUTCOMES:

After successful completion of the course, students should be able to:

CO 1	**Make use of** pre-emptive and non-pre-emptive scheduling strategies for calculating system performance.	Apply
CO 2	**Choose** page replacement algorithm for effective utilization ofmain memory.	Apply
CO 3	**Utilize** file allocation strategy for efficient mass storage devicesmanagement.	Apply
CO 4	**Develop** deadlock handling procedures for improving processmanagement.	Apply
CO 5	**Build** various memory management techniques for better usage ofmemory.	Apply
CO 6	**Make use of** various file organization techniques for properorganization of directory structures.	Apply

IV. SYLLABUS:

LIST OF EXPERIMENTS

Week-L	CPU SCHEDULING ALGORITHMS

Simulate the following CPU scheduling algorithms
1. FCFS
2. SJF

Week-2	CPU SCHEDULING ALGORITHMS

Simulate the following CPU scheduling algorithms
1. Priority

	2. Round robin
Week-3	**FILE ALLOCATION STRATEGIES**
Simulate all file allocation strategies 1. Sequential 2. Indexed 3. Linked	
Week-4	**MVT AND MFT**
Simulate MVT and MFT	
Week-5	**FILE ORGANIZATION TECHNIQUES**
Simulate file organization techniques 1. Single level 2. Two level	
Week-6	**FILE ORGANIZATION TECHNIQUES**
Simulate file organization techniques 1. Hierarchical 2. DAG	
Week-7	**BANKERS ALGORITHM**
Simulate Bankers algorithm for dead lock avoidance.	
Week-8	**BANKERS ALGORITHM**
Simulate Bankers algorithm for dead lock prevention.	
Week-9	**PAGE REPLACEMENT ALGORITHM**
Simulate page replacement algorithm: FIFO	
Week-l0	**PAGE REPLACEMENT ALGORITHM**
Simulate page replacement algorithm: LRU	
Week-l1	**PAGE REPLACEMENT ALGORITHM**
Simulate page replacement algorithm: LFU	
Week-l2	**PAGING TECHNIQUE**
Simulate paging technique of memory management.	
Reference Books: SS	
1. Abraham Silberchatz, Peter B. Galvin, Greg Gagne, "Operating System Principles", Wiley Student Edition, 8th Edition, 2010. 2. William Stallings, "Operating System Internals and Design Principles", Pearson Education, 6th Edition, 2002.	

Web References:
1. www.smartzworld.com/notes/operatingsystems 2. www.scoopworld.in 3. www.sxecw.edu.in 4. www.technofest2u.blogspot.com
Course Home Page:
SOFTWARE AND HARDWARE REQUIREMENTS FOR A BATCH OF 36 STUDENTS: **HARDWARE:** Desktop Computer Systems: 36 nos **SOFTWARE:** C Programming compiler (Open source)