OPERATING SYSTEMS & SOFTWARE ENGINEERING LAB

Course Code	23IT3451	Year	II	Semester	II
Course	PC	Branch	IT		
Credits	1.5	L – T – P	0-0-3	Prerequisites	Data Structures, Computer organization and Architecture
Continuous Evaluation	30	Semester End Evaluation	70	Total Marks	100

Course Outcomes	
Upon successful completion of the course, the student will be able to:	
CO1 Experiment with Unix system calls and Develop various algorithms for CPU scheduling , process synchronization , page replacement, Deadlock avoidance, Disk Scheduling etc.	L3
CO2 Apply suitable Software Engineering principles for software projects implementation.	L3
CO3 Apply technical knowledge to conduct experiments as an individual, or team member using required tools.	
CO4 Develop documentation, reports and make effective presentation of various activities based on experiments implemented.	

Contribution of Course Outcomes towards achievement of Program Outcomes & Strength of correlations (3:Substantial,2:Moderate,1:Slight)														
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	3		3								3	3
CO2	3	3	3		3						3		3	3
CO3					3				3					
CO4										3				

Syllabus		
Unit No.	CONTENTS	Mapped CO
1	Implement various Unix system calls for process and file management	CO1,CO3,CO4
2	Simulate the following CPU scheduling algorithms a) FCFS b) SJF c) Priority d) Round Robin	CO1,CO3,CO4
3	Write a program to solve producer-consumer problem using Semaphores.	CO1,CO3,CO4
4	Simulate the following page replacement algorithms a) FIFO b) LRU c) LFU	CO1,CO3,CO4
5	Implement Bankers Algorithm for Deadlock avoidance	CO1,CO3,CO4

6	Simulate disk scheduling algorithms a) FCFS b) SCAN c) C-SCAN	CO1,CO3,CO4
7	Prepare SRS document and draw the UML Diagrams for the problem a) Online Ticket Reservation System b) ATM	CO2 - CO4
8	Consider any application, using COCOMO model to estimate the effort	CO2 - CO4
9	Consider any application, Calculate effort using FP oriented estimation model.	CO2 - CO4
10	Design the test cases for Online Ticket Reservation System	CO2 - CO4
11	Design the test cases for ATM application	CO2 - CO4
12	Implement the phases of project management- initiating, planning, executing, tracking and closing- using JIRA to effectively manage a software project.	CO2 - CO4

Learning Resources
Reference Books:
1. Operating System Concepts, Silberschatz A, Galvin P B, Gagne G, 10th Edition, Wiley, 2018. 2. Modern Operating Systems, Tanenbaum A S, 4th Edition, Pearson, 2016 3. Operating Systems -Internals and Design Principles, Stallings W, 9th edition, Pearson, 2018. 4. Operating Systems: A Concept Based Approach, D.M Dhamdhere, 3rd Edition, McGraw-Hill, 2013. 1. Software Engineering A practitioner's Approach, Roger S. Pressman, 9th Edition, Mc-Graw Hill International Edition.
E-Resources & other digital material
1.   https://www.cse.iitb.ac.in/~mythili/os/ 2.   http://peterindia.net/OperatingSystems.html 3.   http://vlabs.iitkgp.ac.in/se/2/theory/