OPERATING SYSTEM

Semester	Subject Code	Category	Lecture Hrs		Theory Hrs		Practical		Credits
			Per week	Per Sem	Per week	Per Sem	Per week	Per Sem	
V	21CCS5C	Elective -I	5	75	5	75	0	0	3

COURSE OBJECTIVES

Students will demonstrate a knowledge of process control, threads, concurrency, memory management scheduling, I/O and files, distributed systems, security, networking. Student teams will implement a significant portion of an operating system.

COURSE OUTCOMES

On successful completion of the course, students will be able

CO Number	CO Statement	Knowledge Level (K1-K4)
CO1	Analyze the structure of OS and basic architectural components involved in OS design	K1
CO2	Understand the Mutual exclusion, Deadlock detection and agreement protocols of Distributed operating system	K2
CO3	Describe about Memory allocation in distributed OS.	K4
CO4	Implementing Swapping and Virtual Memory management.	K3
CO5	Interpret the mechanisms adopted for file sharing in distributed Applications	K4

Knowledge Level – K1-Remember, K2- Understand, K3-Apply, K4-Analyze

MAPPING WITH PROGRAMME OUTCOME

COS	PO1	P3O2	PO3	PO4	PO5	PO6
CO1	M	L	M	L	S	M
CO2	M	M	M	M	L	M
CO3	S	M	S	M	S	L
CO4	M	S	L	M	L	M
CO5	M	S	S	M	L	M

S-strong M-Medium L-Low

UNIT – I OPERATING SYSTEM BASICS **15 Hours**

Basic Concepts of Operating System - Services of Operating System-Classification of Operating System- Architecture and Design of an Operating System-Process Management -Introduction to Process-Process State -PCB - Process Scheduling - Inter process Communication.

UNIT –II OPERATING SYSTEM SCHEDULING **16 Hours**

CPU Scheduling: Introduction - Types of CPU Scheduler - Scheduling Criteria - Scheduling Algorithms - FCFS Scheduling – SJF Scheduling;-Priority Scheduling - Round-Robin Scheduling- Multilevel Queue Scheduling - Deadlock - Basic Concept of Deadlock- Deadlock Prevention - Deadlock Avoidance- Deadlock - Detection and Recovery.

UNIT- III MEMORY MANAGEMENT **14 Hours**

Memory Management - Basic Concept of Memory - Address Binding; Logical and Physical Address Space- Memory Partitioning - Memory Allocation - Protection- Fragmentation and Compaction.

UNIT – IV SWAPPING **16 Hours**

Swapping- Using Bitmaps - Using Linked Lists- Paging-Mapping of Pages to Frames - Hierarchical Page Tables- Segmentation - Virtual Memory - Basic Concept of Virtual Memory- Demand Paging - Transaction Look aside Buffer (TLB) - Inverted Page Table- Page Replacement Algorithms.4

UNIT –V FILE MANAGEMENT **14 Hours**

File Management - Basic Concept of File-Directory Structure-File Protection-Allocation Methods

– Various Disk Scheduling algorithms.

Self Study: Unix Operating System

Distribution of Marks: Theory 75% and Applications 25%

TEXT BOOKS

S. No	Authors	Title	Publishers	Year of publication
1	Abraham Silberschatz Peter B. Galvin, G. Gagne	Operating System Concepts	Addison Wesley Publishing Co Sixth Edition	2014

REFERENCE BOOKS

S. No	Authors	Title	Publishers	Year of publication
1	W. Stallings	Operating systems - Internals and Design Principles	PEARSON 6th Edition	2013
2	Charles Patrick Crowley	Operating Systems: A Design-Oriented Approach	PEARSON 4th Edition	2013
3	Andrea C. Arpaci-Dusseau, Remzi H. Arpaci-Dusseau	Operating Systems: Three Easy Pieces	Arpaci-Dusseau Publishers	2015
4	Andrew Tanenbaum	Modern Operating Systems	Prentice Hall	2014
5	Naresh Chauhan	Principles of Operating Systems	Oxford Higher Education	2014
6	D.M. Dhamdhere	Operating systems - A Concept-based Approach	PEARSON 8th Edition	2013
7	Avi Silberschatz, Greg Gagne, and Peter Baer Galvin	Operating System Concepts Essentials	O'Reily Media 2 Edition	2010
8	Albert S. Woodhull, Andrew S. Tanenbaum	Operating Systems: Design and Implementation	Prentice hall	2018

WEB RESOURCES

- https://www.tutorialspoint.com/operating_system/index.htm
- https://www.javatpoint.com/os-tutorial

TEACHING METHODOLOGY

- Class room teaching.
- Group discussions
- Seminars
- Demo using systems
- Chart/Assignment
- Simulation Model
- Smart Class room

SYLLABUS DESIGNER

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