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		Core Theory -9	6	90	6	90	0	0	4

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 to

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	PO2	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***

SYLLABUS

UNIT – I OPERATING SYSTEM BASICS **18 Hrs**

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 – Interprocess Communication.

UNIT –II OPERATING SYSTEM SCHEDULING **19 HRS**

CPU Scheduling: Introdution – 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 **17 HRS**

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

UNIT – IV SWAPPING **18 HRS**

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.

UNIT –V FILE MANAGEMENT **18 HRS**

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 80% and Applications 20%

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	2003

REFERENCE BOOKS

S. No	Authors	Titl e	Publishers	Year of publicati on
1	W. Stallings	Operating systems - Internals and Design Principles	PEARSON 6th Edition	2003
2	Willam-Stallings	Operating System	PEARSON 4th Edition	2003
3	Abraham Silberschatz	Operating System Concepts	Wiley Publishers	2015
4	Andrew Tanenbaum	Modern Operating Systems	Prentice Hall	2014

5	Naresh Chauhan	Principles of Operating Systems	Oxford Higher Education	2014
6	W. Stallings	Operating systems – Internals and Design Principles	PEARSON 8th Edition	2014
7	Avi Silberschatz, Greg Gagne, and Peter Baer Galvin	Operating System Concepts Essentials	O'Reily Media 2 Edition	2010
8	Andrew S. Tanenbaum	Modern Operating Systems	Pearson Education	2015

WEB SOURCES

- 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

1. Mrs. G.Sangeetha Lakshmi, Assistant Professor and Head, Dept of Computer Applications.
2. Mrs. B.Arulmozhi , Assistant Professor and Head, Department of Computer Science
3. Dr. R.Hamsaveni, Assistant Professor, Department of Computer Science