MOHAMMED SATHAK A J COLLEGE OF ENGINEERING

Siruseri IT park, OMR, Chennai - 603103

LESSON PLAN							
Department of Computer Science Engineering							

Name of the Subject	OPERATING SYSTEMS			Name of the	Mrs Saranya.V		
Subject Code	CS8493			Year / Sem	II/IV		
Acad Year	2021-2022			Batch	2020-2024		

Course Objective
To understand the basic concepts and functions of operating systems.
To understand Processes and Threads
To analyze Scheduling algorithms.
To understand the concept of Deadlocks.
To analyze various memory management schemes.
To understand I/O management and File systems.
To be familiar with the basics of Linux system and Mobile OS like iOS and Android

Course Outcome
Upon completion of the course, the students will be able to:
CO1: Describe the basic concepts of operating systems
CO2: Analyze various scheduling algorithms and Illustrate the deadlock, deadlock prevention and deadlock avoidance algorithms.
CO3:Compare and contrast various memory management schemes.
CO4: Perform administrative tasks on Linux Servers and functionality of file systems
CO5:Compare iOS and Android Operating Systems

Lesson Plan							
Sl. No.	Topic(s)	T / R* Book	Periods Required	Mode of Teaching (BB / PPT /	Blooms Level (L1-L6)	CO	PO
UNIT I INTRODUCTION							
1	Computer System Overview	T1	1	PPT	L1	CO1	PO1
2	Basic Elements, Instruction Execution, Interrupts	T1	1	PPT	L1	CO1	PO1
3	Memory Hierarchy, Cache Memory, Direct Memory	T1	1	PPT	L2	CO1	PO2
4	Operating system overview-objectives and functions	T1	1	PPT	L2	CO1	PO2
5	Evolution of Operating System	T2	1	PPT	L2	CO1	PO1
6	Computer System Organization	T2	1	PPT	L2	CO1	PO1
7	Operating System Structure and Operations	T1	1	PPT	L2	CO1	PO2
8	System Calls, System Programs,	T1	1	PPT	L2	CO1	PO3
9	OS Generation and System Boot	T2	1	PPT	L2	CO1	PO2
Suggested Activity: Assignment / ~~Case Studies / Tuorials/ Quiz / Mini Projects / Model Developed/others~~ Planned if any							
Evaluation method							
UNIT II PROCESS MANAGEMENT							
10	Processes - Process Concept, Process Scheduling,	T1	1	PPT	L2	CO2	PO1
11	Operations on Processes, Inter-process	T1	1	PPT	L2	CO2	PO2
12	CPU Scheduling - Scheduling criteria, Scheduling	T1	1	PPT	L3	CO2	PO3
13	Threads- Overview, Multithreading models, Threading	T1	1	PPT	L2	CO2	PO1
14	Process Synchronization - The critical-section problem,	T1	1	PPT	L3	CO2	PO2
15	Semaphores, Classic problems of synchronization, Critical	T1	1	PPT	L3	CO2	PO3
16	Deadlock - System	T1	1	PPT	L3	CO2	PO2
17	Deadlock prevention,	T1	1	PPT	L3	CO2	PO3
18	Deadlock detection, Recovery from deadlock.	T1	1	PPT	L3	CO2	PO3
Suggested Activity: Assignment / ~~Case Studies / Tuorials/ Quiz / Mini Projects / Model Developed/others~~ Planned if any							
Evaluation method							
UNIT III STORAGE MANAGEMENT							
19		T1	1	PPT	L2	CO3	PO1
20	Paging,	T1	1	PPT	L2	CO3	PO2
21	Segmentation,	T1	1	PPT	L3	CO3	PO2
22	32 and 64 bit architecture Examples;	T1	1	PPT	L4	CO3	PO3
23	Virtual Memory – Background,	T1	1	PPT	L3	CO3	PO2
24	Page Replacement,	T1	1	PPT	L3	CO3	PO3
25	Allocation,	T1	1	PPT	L3	CO3	PO3
26	Thrashing;	T1	1	PPT	L3	CO3	PO2
27	Allocating Kernel Memory, OS	T1	1	PPT	L3	CO3	PO3
Suggested Activity: Assignment / Case Studies / Tuorials/ Quiz / Mini Projects / Model Developed/others Planned if any							
Evaluation method							
UNIT IV FILE SYSTEMS AND I/O SYSTEMS							
28	Mass Storage system – Overview of Mass Storage	T1	1	PPT	L2	CO4	PO1
29	Disk Structure, Disk Scheduling and	T1	1	PPT	L2	CO4	PO3
30	swap space management; File-System Interface - File	T1	1	PPT	L2	CO4	PO2
31	Directory Structure, Directory organization,	T1	1	PPT	L2	CO4	PO2
32	File system mounting, File Sharing and Protection; File	T1	1	PPT	L2	CO4	PO2
33	File System Structure, Directory implementation,	T1	1	PPT	L2	CO4	PO3
34	Free Space Management, Efficiency and Performance,	T1	1	PPT	L3	CO4	PO3
35	I/O Systems – I/O Hardware,	T1	1	PPT	L4	CO4	PO3

36	Kernel I/O subsystem, Streams, Performance.	T1	1	PPT	L4	CO4	PO3

Suggested Activity: Assignment / Case Studies / Tuorials/ Quiz / Mini Projects / Model Developed/others Planned if any

Evaluation method

UNIT V CASE STUDY

37	Linux System - Design Principles,	T1	1	PPT	L3	CO5	PO2
38	Kernel Modules, Process Management,	T1	1	PPT	L3	CO5	PO2
39	Scheduling, Memory	T1	1	PPT	L3	CO5	PO3
40	Input-Output Management	T1	1	PPT	L3	CO5	PO3
41	File System, Inter-process Communication;	T1	1	PPT	L3	CO5	PO3
42	Mobile OS - iOS and Android -	W1	1	PPT	L4	CO5	PO3
43	Architecture and SDK Framework,	W2	1	PPT	L3	CO5	PO3
44	Media Layer, Services Layer,Core OS Layer	W3	1	PPT	L3	CO5	PO3
45	File System.	W3	1	PPT	L3	CO5	PO3

Suggested Activity: Assignment / Case Studies / Tuorials/ Quiz / Mini Projects / Model Developed/others Planned if any

1. Write about Linux architecture and Linux kernel with neat sketch
2. Explain in detail about LINUX multifunction server,DNS VMware on Linux host
3. Explain File system mounting, File Sharing and Protection
    4.Explore any one open source operating system and submit a report on the same

Evaluation method

Content Beyond the Syllabus Planned

1	Linux Game design .
2	Real world applications of Linux OS
3	Mind mapping of Windows and Linux

Text Books

1	Abraham Silberschatz, Peter Baer Galvin and Greg Gagne, "Operating System Concepts", 9 th Edition, John Wiley and Sons Inc., 2012

Reference Books

1	Ramaz Elmasri, A. Gil Carrick, David Levine, "Operating Systems – A Spiral Approach", Tata McGraw Hill Edition, 2010.
2	Achyut S.Godbole, Atul Kahate, "Operating Systems", McGraw Hill Education, 2016.
3	Andrew S. Tanenbaum, "Modern Operating Systems", Second Edition, Pearson Education, 2004.
4	Gary Nutt, "Operating Systems", Third Edition, Pearson Education, 2004.
5	
6	
7	Neil Smyth, "iPhone iOS 4 Development Essentials – Xcode", Fourth Edition, Payload media, 2011.

Website / URL References

1	W1: https://www.webopedia.com/DidYouKnow/Hardware_Software/mobile-operating-systems-mobile-osexplained.htm (TOPIC NO: 42)
2	W2: https://www.techotopia.com/index.php/IOS_6_Architecture_and_SDK_Frameworks
3	W3: https://developer.apple.com/library/archive/documentation/MacOSX/Conceptual/OSX_Technology_

Blooms Level

Level 1 (L1) : Remembering Level 2 (L2) : Understanding Level 3 (L3) : Applying	Lower Order Thinking	Fixed Hour Exams	Level 4 (L4) : Analysing Level 5 (L5) : Evaluating Level 6 (L6) : Creating		Higher Order Thinking	Projects / Mini Projects

Mapping syllabus with Bloom's Taxonomy LOT and HOT

Unit No	Unit Name	L1	L2	L3	L4	L5	L6	LOT	HOT	Total
Unit 1	OPERATING SYSTEM OVERVIEW	2	7	0	0	0	0	9	0	9
Unit 2	PROCESS MANAGEMENT	0	3	6	0	0	0	9	0	9
Unit 3	STORAGE MANAGEMENT	0	2	6	1	0	0	8	1	9
Unit 4	FILE SYSTEMS AND I/O SYSTEMS	0	6	1	2	0	0	7	2	9
Unit 5	CASE STUDY	0	0	8	1	0	0	8	1	9
	Total	2	18	21	4	0	0	41	4	45
	Total Percentage	4.44444	40	46.6667	8.88889	0	0	91.11	8.888889	100

CO PO Mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2	1	0	0	0	0	0	0	0	0	0	3	2
CO2	3	2	1	0	0	0	0	0	0	0	0	0	3	2
CO3	3	2	1	0	0	0	0	0	0	0	0	0	3	2
CO4	3	2	1	1	0	0	0	0	0	0	0	0	3	2
CO5	3	2	1	0	0	0	0	0	0	0	0	0	3	2
Avg	3	2	1	0.2	0	0	0	0	0	0	0	0	3	2

Justification for CO-PO mapping

CO1	Gain Knowledge about the overall view of the computer system and operating system
CO2	Identify and Analyze various scheduling algorithm and Understand the deadlock prevention and avoidance algorithm
CO3	Compare and contrast various memory management schemes and Discuss the performance of the various page replacement algorithms
CO4	Demonstrate administrative tasks on Linux servers and Identify file system functionalities and interpret the file system implementation,
CO5	

3	High level	2	Moderate level	1	Low level

Name & Sign of Faculty Incharge :Mrs Saranya.V

Name & Sign of Subject Expert :

Head of the Department :CSE

Format No :231