GOVT. POLYTECHNIC, HAMIRPUR (H.P.)
Lesson Planning

Branch: Computer Engineering

Subject: Operating System

Laboratory: Yes

Teacher: Indu Bala

Semester: 3rd

Session: Aug-Dec 2024

Course Code: ITPC209
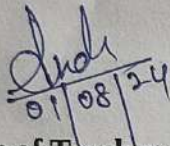
Sr. No.	No of Lectures	Chapter/Unit Description	Detailed contents	Reference Resources	Remarks
1	12	Unit 1 : Overview of Operating Systems	Objectives and Functions of Operating Systems, Operating Systems Evolution - Batch Processing Systems, Multiprogramming Systems, Multiprocessing Systems, Time Sharing Systems, Personal Computer Operating Systems, Handheld Computer Systems, Real Time Systems, Distributed Systems; Operating System Architecture - Monolithic vs Microkernel	R1,R2,R3	
2	12	Unit 2 : Processes and Threads	Process, Process States, Process Life Cycle, Process Control Block (PCB), Threads, Multithreading, Inter-process Communication, Process Synchronization, Race Condition, Critical Section Problem and its Solutions, Deadlocks - Characterization, Necessary Conditions, Deadlock Avoidance, Prevention and Recovery	R1,R2,R3	
3	12	Unit 3 : CPU Scheduling	CPU Scheduler, Preemptive and Non-preemptive Scheduling, Scheduling Criteria - CPU Utilization, Throughput, Turnaround Time, Waiting Time, Response Time; Scheduling Algorithms - First Come First Serve, Shortest Job First, Shortest Remaining Time First, Priority Scheduling, Round-Robin; Multiprocessor Scheduling	R1,R2,R3	
4	12	Unit 4 : Memory Management	Memory Hierarchy, Address Space, Address Translation, Memory Protection, Swapping, Contiguous Memory Allocation, Fixed Partition and Variable Partition Schemes, Memory Allocation Strategies, Fragmentation, Compaction, Non-Contiguous Memory Allocation, Paging, Segmentation, Virtual Memory, Demand Paging, Thrashing, Page Replacement Policies	R1,R2,R3	
5	6	Unit 5 : Storage Management	Storage Devices - Magnetic Tapes, Magnetic Disks, Optical Disks, Flash Storage; Sequential and Direct Access, Disk Scheduling - SCAN, CSCAN	R1,R2,R3	

| 6 | 6 | Unit 6 : Linux Operating System | Features of Linux OS, GNU Project, Linux Architecture - Kernel, System Calls Interface, System Libraries, Shell | R1,R2,R3 | |

Reference Books:

1.Modern Operating Systems by Andrew S. Tanenbaum

2.Operating System Internal and Design Principles by William Stallings

3. Operating System By Galvin

01/08/24

Signature of Teacher with Date   **Signature of HOD**

Branch: Computer Engineering

Subject: Operating System Lab   **Course Code:** ITPC217

Teacher: Indu Bala

Semester: 6th

Session: Aug-Dec2024

Laboratory: OS Lab

Sr. No.	No of Practical hours planned	Aim of the Practical	Reference for Procedure/ Writeup	Remarks
1	4	To install and configure MS Windows 10/11 on a computer system.	R1, R2	
2	4	To install and configure Linux on a computer system.	R1, R2	
3	4	To get familiar with the Windows 10/11 graphical user interface.	R1, R2	
4	4	To get familiar with Windows 10/11 directory structure and role of each directory.	R1, R2	
5	4	To get familiar with Linux directory structure and role of each directory.	R1, R2	
6	6	To get conversant with various operations on files and folders in Windows 10/11.	R1, R2	
7	6	To connect a computer to the LAN/ WiFi network and Internet in Windows 10/11 and demonstrate file transfer and remote login.	R1, R2	
8	4	To carry out basic file operations using command prompt/ terminal in Windows 10/11.	R1, R2	
9	4	To get familiar with various components of the Control Panel in Windows 10/11.	R1, R2	
10	6	To get conversant with various shortcut keys in Windows 10/11 to carry out various tasks.	R1, R2	
11	4	To view and terminate running processes in Windows 10/11.	R1, R2	
12	6	To simulate FCFS and SJF scheduling algorithms in any programming language.	R1, R2	

References:

R1:   Lab Manual

R2:   https://www.w3schools.com/python

Signature of Teacher with Date

Signature of HOD