

Govt. Polytechnic Hamirpur (H.P.)

Lesson Plan: OPERATING SYSTEM

Branch: **Computer Engg.**

Semester: **3rd**

Subject: **Operating System**

Teacher: **AMIT NAYYER**

Lecture Number	Topics to be covered	Reference/ Resource	Remarks
<u>Unit 1 : Overview of Operating Systems</u>			
1	Objectives and Functions of Operating Systems	R3	Lecture delivery will be through classroom teaching and Notes will be shared during lecture
2	Operating Systems Evolution	R3, R2	
3	Batch Processing Systems	R3, R2	
4	Multiprogramming Systems	R2,	
5	Multiprocessing Systems	R1	
6	Time Sharing Systems	R1	
7	Personal Computer Operating Systems	R2	
8	Handheld Computer Systems	R2	
9	Real Time Systems	R3	
10	Distributed Systems	R3	
11	Operating System Architecture	R3	
12	Monolithic vs Microkernel	R3	
<u>Unit 2 : Processes and Threads</u>			
13	Process, Process States	R2	Lecture delivery will be through classroom teaching as well as power point presentations.
14	Process Life Cycle	R3	
15	Process Control Block (PCB)	R3	
16	Threads, Multithreading	R3	
17	Inter-process Communication	R3	
18	Process Synchronization	R3	
19	Race Condition	R3, R2	
20	Critical Section Problem and its Solutions	R3, R2	
21	Deadlocks - Characterization, Necessary Conditions	R2,	
22	Deadlock Avoidance	R1	
23	Prevention and	R1	
24	Recovery	R2	
<u>Unit 3 : CPU Scheduling</u>			
25	CPU Scheduler	R3	Lecture delivery will be through classroom teaching as well as power point presentations.
26	Preemptive and Non-preemptive Scheduling,	R3	
27	Scheduling Criteria - CPU Utilization	R3, R2	
28	Throughput, Turnaround Time	R3, R2	
29	Waiting Time	R2,	

30	Response Time	R1	
31	Scheduling Algorithms - First Come First Serve	R1	
32	Shortest Job First	R2	
33	Shortest Remaining Time First	R2	
34	Priority Scheduling	R3	
35	Round-Robin	R3	
36	Multiprocessor Scheduling	R3	
<u>Unit 4 : Memory Management</u>			
37	Memory Hierarchy	R2	Lecture delivery will be through classroom teaching and Notes will be shared during lecture
38	Address Space, Address Translation	R1	
39	Memory Protection, Swapping	R1	
40	Contiguous Memory Allocation	R2	
41	Fixed Partition and Variable Partition Schemes	R2	
42	Memory Allocation Strategies	R3	
43	Fragmentation, Compaction	R3	
44	Non-Contiguous Memory Allocation	R3	
45	Paging, Segmentation	R3	
46	Virtual Memory, Demand Paging	R3	
47	Thrashing,	R3, R2	
48	Page Replacement Policies	R3, R2	
<u>Unit 5 : Storage Management</u>			
49	Storage Devices	R3, R2	Lecture delivery will be through classroom teaching and Notes will be shared during lecture
50	Magnetic Tapes	R3, R2	
51	Magnetic Disks	R2,	
52	Optical Disks	R1	
53	Flash Storage	R1	
54	Sequential and Direct Access	R2	
55	Disk Scheduling - SCAN	R2	
56	CSCAN	R3	
<u>Unit 6 : Linux Operating System</u>			
57	Introduction to Linux and its versions	R4	Lecture delivery will be through classroom teaching and Notes will be shared during lecture
58	Features of Linux OS	R4	
59	GNU Project	R4	
60	Linux Architecture	R4	
61	- Kernel	R4	
62	System Calls Interface	R4	
63	System Libraries	R4	
64	Shell	R4	

Teaching Resources:

R1: Modern Operating Systems by Andrew S. Tanenbaum

R2. Operating System Internal and Design Principles by William Stallings

R3. Operating System Concepts by Abraham Silberschatz, Wiley India Pvt. Ltd. R

R4. Linux with Operating System Concepts By Richard Fox, Chapman and Hall

Date:

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