



Atal Bihari Vajpayee Govt Institute of Engineering & Technology
Pragatinagar, Shimla (H.P.) – 171202

DEPARTMENT OF COMPUTER ENGINEERING

LESSON PLAN

Academic Year	2026-2027
Semester	3rd
Subject Code	ITPC209
Subject Title	Operating Systems
Name of Faculty	Sweety Rangta
Semester Start & End Dates	03.08.2026 to 28.11.2026

Study and Evaluation Scheme

Sr. No.	Name of the Subject	Hours/Week			Total Hrs/Week	Credits	Evaluation Scheme						
							Internal		External				
		L	P	DCS			Th	Pr	Th	Hrs	Pr	Hrs	Total
1.	Operating Systems	3	--	1	04	3	40	--	60	--	--	--	--

Course Outcomes:

- CO 1: Understand the terminology related to the domain of operating systems.
CO 2: Explain the role and functions of an operating system.
CO 3: Understand the architecture of modern operating systems.
CO 4: Understand basic techniques used by an OS to manage computing resources.

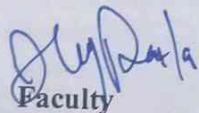
Day / Date	Topic of Discussion	Topic Details	Delivery Method	Remarks
Unit-1: Overview of Operating Systems				
Day 1 03.08.2026 (Mon)	Introduction to Operating Systems	Objectives and functions of Operating Systems; role of OS in managing computer resources.	Chalk & Talk	
Day 2 04.08.2026 (Tue)	Objectives and Functions of Operating Systems	OS services, resource management and user interaction.	Chalk & Talk	
Day 3 06.08.2026 (Thu)	Operating Systems Evolution	Batch Processing Systems and Multiprogramming Systems.	Chalk & Talk	
Day 4 07.08.2026 (Fri)	Operating Systems Evolution	Multiprocessing Systems and Time Sharing Systems.	Chalk & Talk	
Day 5 10.08.2026 (Mon)	Operating Systems Evolution	Personal Computer Operating Systems and Handheld Computer Systems.	Chalk & Talk	
Day 6 11.08.2026 (Tue)	Operating Systems Evolution	Real Time Systems and Distributed Systems.	Chalk & Talk	
Day 7 13.08.2026 (Thu)	Operating System Architecture	Overview of OS architecture; major components and organization.	Chalk & Talk	
Day 8 14.08.2026 (Fri)	Monolithic Architecture	Concept, structure, characteristics, advantages and limitations of monolithic architecture.	Chalk & Talk	
Day 9 17.08.2026 (Mon)	Microkernel Architecture	Concept, structure, characteristics, advantages and limitations of microkernel architecture.	Chalk & Talk	
Day 10	Monolithic vs	Comparison of monolithic and	Chalk & Talk	

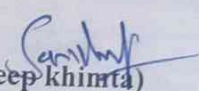
18.08.2026 (Tue)	Microkernel	microkernel architectures; suitable applications.		
Unit-2: Processes and Threads				
Day 11 20.08.2026 (Thu)	Process	Definition of process; process concept and process execution.	Chalk & Talk	
Day 12 21.08.2026 (Fri)	Process States	New, Ready, Running, Waiting/Blocked and Terminated states; process state transitions.	Chalk & Talk	
Day 13 24.08.2026 (Mon)	Process Life Cycle and PCB	Process life cycle and Process Control Block (PCB); information maintained in PCB.	Chalk & Talk	
Day 14 25.08.2026 (Tue)	Threads	Definition of thread; benefits and relationship between process and thread.	Chalk & Talk	
Day 15 27.08.2026 (Thu)	Multithreading	Multithreading concept, benefits and models; user-level and kernel-level threads.	Chalk & Talk	
Day 16 28.08.2026 (Fri)	Inter-process Communication	Need for IPC; communication between processes using common IPC mechanisms.	Chalk & Talk	
Day 17 31.08.2026 (Mon)	Process Synchronization	Need for synchronization; shared data and synchronization concepts.	Chalk & Talk	
Day 18 01.09.2026 (Tue)	Race Condition and Critical Section	Race condition, critical section problem and requirements for a correct solution.	Chalk & Talk	
Day 19 03.09.2026 (Thu)	Critical Section Problem Solutions	Basic solutions to the critical section problem; synchronization mechanisms.	Chalk & Talk	
Day 20 14.09.2026 (Mon)	Deadlocks	Deadlock characterization and necessary conditions; deadlock avoidance and recovery.	Chalk & Talk	
Unit-3: CPU Scheduling				
Day 21 15.09.2026 (Tue)	CPU Scheduling	Process scheduling; role of scheduler; preemptive and non-preemptive scheduling.	Chalk & Talk	
Day 22 17.09.2026 (Thu)	Scheduling Criteria	CPU utilization, throughput, turnaround time, waiting time and response time.	Chalk & Talk	
Day 23 18.09.2026 (Fri)	FCFS Scheduling	First Come First Serve scheduling; working and scheduling examples.	Chalk & Talk	
Day 24 21.09.2026 (Mon)	SJF Scheduling	Shortest Job First scheduling; working, advantages, limitations and examples.	Chalk & Talk	
Day 25 22.09.2026 (Tue)	SRTF Scheduling	Shortest Remaining Time First scheduling; preemptive approach and examples.	Chalk & Talk	
Day 26 24.09.2026 (Thu)	Priority Scheduling	Priority scheduling; preemptive and non-preemptive approaches and examples.	Chalk & Talk	
Day 27 25.09.2026 (Fri)	Round-Robin Scheduling	Round-Robin scheduling; time quantum, working and examples.	Chalk & Talk	
Day 28 28.09.2026 (Mon)	Scheduling Algorithms	Comparison of FCFS, SJF, SRTF, Priority and Round-Robin using scheduling criteria.	Chalk & Talk	
Day 29 29.09.2026 (Tue)	Multiprocessor Scheduling	Concept of multiprocessor scheduling; challenges and basic approaches.	Chalk & Talk	
Day 30 01.10.2026 (Thu)	CPU Scheduling Practice	Numerical/problem-solving practice based on scheduling algorithms and performance measures.	Chalk & Talk	
Unit-4: Memory Management				
Day 31 12.10.2026 (Mon)	Memory Management	Memory hierarchy and address space; basic memory management concepts.	Chalk & Talk	
Day 32	Address Translation	Address translation and memory	Chalk & Talk	

10.2026 (Sat)	and Protection	protection.		
Day 33 15.10.2026 (Thu)	Swapping	Swapping concept, working and role in memory management.	Chalk & Talk	
Day 34 16.10.2026 (Fri)	Contiguous Memory Allocation	Fixed partition and variable partition schemes; allocation process.	Chalk & Talk	
Day 35 19.10.2026 (Mon)	Fragmentation and Compaction	Internal/external fragmentation and memory compaction.	Chalk & Talk	
Day 36 22.10.2026 (Thu)	Memory Allocation Strategies	Basic memory allocation strategies for contiguous allocation.	Chalk & Talk	
Day 37 23.10.2026 (Fri)	Non-Contiguous Memory Allocation	Concept and need for non-contiguous memory allocation.	Chalk & Talk	
Day 38 27.10.2026 (Tue)	Paging	Paging concept, page/frame organization and address translation.	Chalk & Talk	
Day 39 29.10.2026 (Thu)	Segmentation	Segmentation concept and address translation; comparison with paging.	Chalk & Talk	
Day 40 30.10.2026 (Fri)	Virtual Memory and Demand Paging	Virtual memory, demand paging and page-fault concept.	Chalk & Talk	
Day 41 02.11.2026 (Mon)	Thrashing and Page Replacement	Thrashing and page replacement policies; basic comparison of replacement approaches.	Chalk & Talk	
Unit-5: Storage Management				
Day 42 03.11.2026 (Tue)	Storage Devices	Magnetic tapes, magnetic disks, optical disks and flash storage.	Chalk & Talk	
Day 43 05.11.2026 (Thu)	Storage Access Methods	Sequential access and direct access; comparison and applications.	Chalk & Talk	
Day 44 06.11.2026 (Fri)	Disk Scheduling	Need for disk scheduling; objectives and basic disk scheduling concepts.	Chalk & Talk	
Day 45 09.11.2026 (Mon)	SCAN Disk Scheduling	SCAN algorithm; working and example.	Chalk & Talk	
Day 46 10.11.2026 (Tue)	C-SCAN Disk Scheduling	C-SCAN algorithm; working and example; comparison with SCAN.	Chalk & Talk	
Day 47 12.11.2026 (Thu)	Storage Management Practice	Comparison of storage devices, access methods, SCAN and C-SCAN with examples.	Chalk & Talk	
Unit-6: Linux Operating System				
Day 48 13.11.2026 (Fri)	Linux Operating System	Features of Linux OS and overview of the GNU Project.	Chalk & Talk	
Day 49 16.11.2026 (Mon)	Linux Architecture	Overview of Linux architecture and major layers/components.	Chalk & Talk	
Day 50 17.11.2026 (Tue)	Linux Kernel	Role and functions of the Linux kernel.	Chalk & Talk	
Day 51 19.11.2026 (Thu)	System Calls Interface	System calls interface; purpose and interaction between applications and kernel.	Chalk & Talk	
Day 52 20.11.2026 (Fri)	System Libraries	Role of system libraries in Linux architecture.	Chalk & Talk	
Day 53 23.11.2026 (Mon)	Linux Shell	Shell concept, role and basic interaction with the operating system.	Chalk & Talk	
Day 54 26.11.2026	Linux Architecture Integration	Kernel, system calls interface, system libraries and shell—	Chalk & Talk	

(Thu)		integrated view.		
Day 55 27.11.2026 (Fri)	Course Revision	Comprehensive revision of Units 1-6; key concepts and examination-oriented discussion.	Chalk & Talk	

	Name of Book	Author Name	Publication
Prescribed Books	Modern Operating Systems	Andrew S. Tanenbaum	Pearson
	Operating System Internal and Design Principles	William Stallings	Pearson
Reference Books	Linux with Operating System Concepts	Richard Fox	Chapman and Hall


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