

SATYUG DARSHAN INSTITUTE OF ENGINEERING & TECHNOLOGY, FARIDABAD				
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING				
Lesson Plan / Teaching Plan / Lecture Plan with Progress : B CA-DS-2nd Semester : 2025-26				
Course Name (Code):		BCG-106-V1	Faculty : Ms.Shivani Bansal	
Topics / lectures are arranged in sequence - same - as to be taught in the class. Maintain data related to "Date" in its hard copy.				
S. No.	Lecture No	Topic Description	Teaching Pedagogy	Reference Material
1	1	Introduction to Operating Systems: Concept and Objectives	Lecture + PPT	R1,R2
2	2	Evolution & Generations of Operating Systems	Lecture + PPT	R1,R2
3	3	Types of Operating Systems (Batch, Multiprogramming, Time Sharing, Real Time, Distributed)	Lecture + PPT	R1,R2
4	4	Operating System Services	Lecture + PPT	R1,R2
5	5	System Calls and OS Interfaces	Lecture + PPT	R1,R2
6	6	OS Structures: Monolithic and Layered Architecture	Lecture + PPT	R1,R2
7	7	Microkernel Architecture – Case discussion	Lecture + PPT	R1,R2
8	8	Process Concept and Process Relationship	Lecture + PPT	R1,R2
9	9	Process States and State Transition Diagram	Lecture + PPT	R1,R2
10	10	Process Control Block (PCB)	Lecture + PPT	R1,R2
11	11	Context Switching and its Overheads	Lecture + PPT	R1,R2
12	12	Thread Concept and Benefits	Lecture + PPT	R1,R2
13	13	Types of Threads (User & Kernel Threads)	Lecture + PPT	R1,R2
14	14	Multithreading Models	Lecture + PPT	R1,R2
15	15	CPU Scheduling	Lecture + PPT	R1,R2
16	16	Scheduling Objectives and Criteria	Lecture + PPT	R1,R2
17	17	Types of Schedulers (Long, Medium, Short term)	Lecture + PPT	R1,R2
18	18	Preemptive vs Non-preemptive Scheduling	Lecture + PPT	R1,R2
19	19	FCFS Scheduling Algorithm (Numericals)	Lecture + PPT	R1,R2
20	20	SJF Scheduling Algorithm (Numericals)	Lecture + PPT	R1,R2
21	21	Round Robin Scheduling (Numericals)	Lecture + PPT	R1,R2
22	22	Comparative Analysis of Scheduling Algorithms	Lecture + PPT	R1,R2
23	23	Inter-Process Communication (IPC) – Concept	Lecture + PPT	R1,R2
24	24	Critical Section Problem	Lecture + PPT	R1,R2
25	25	Race Condition and Mutual Exclusion	Lecture + PPT	R1,R2
26	26	Hardware Solutions for Critical Section	Lecture + PPT	R1,R2
27	27	Peterson’s Solution and Strict Alternation	Lecture + PPT	R1,R2
28	28	Producer–Consumer Problem	Lecture + PPT	R1,R2
29	29	Semaphores: Concept and Implementation	Lecture + PPT	R1,R2
30	30	Monitors	Lecture + PPT	R1,R2
31	31	Message Passing Systems	Lecture + PPT	R1,R2
32	32	Classical IPC Problems (Readers–Writers, Dining Philosophers)	Lecture + PPT	R1,R2
33	33	Deadlock: Definition and System Model	Lecture + PPT	R1,R2

SATYUG DARSHAN INSTITUTE OF ENGINEERING & TECHNOLOGY, FARIDABAD				
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING				
Lesson Plan / Teaching Plan / Lecture Plan with Progress : B CA-DS-2nd Semester : 2025-26				
Course Name (Code):		BCG-106-V1	Faculty : Ms.Shivani Bansal	
Topics / lectures are arranged in sequence - same - as to be taught in the class. Maintain data related to "Date" in its hard copy.				
S. No.	Lecture No	Topic Description	Teaching Pedagogy	Reference Material
34	34	Necessary Conditions for Deadlock	Lecture + PPT	R1,R2
35	35	Deadlock Prevention Techniques	Lecture + PPT	R1,R2
36	36	Deadlock Avoidance – Banker’s Algorithm	Lecture + PPT	R1,R3
37	37	Deadlock Detection	Lecture + PPT	R1,R3
38	38	Deadlock Recovery Techniques	Lecture + PPT	R1,R3
39	39	Memory Management: Basic Concepts	Lecture + PPT	R1,R3
40	40	Logical vs Physical Address Space	Lecture + PPT	R1,R3
41	41	Contiguous Memory Allocation	Lecture + PPT	R1,R3
42	42	Fixed and Variable Partitioning	Lecture + PPT	R1,R3
43	43	Internal and External Fragmentation, Compaction	Lecture + PPT	R1,R3
44	44	Paging: Basic Concept	Lecture + PPT	R1,R3
45	45	Page Allocation and Hardware Support	Lecture + PPT	R1,R3
46	46	Protection and Sharing in Paging	Lecture + PPT	R1,R3
47	47	Virtual Memory Concept and Locality of Reference	Lecture + PPT	R1,R3
48	48	Demand Paging and Page Fault Handling	Lecture + PPT	R1,R3
49	49	Page Replacement Algorithms: FIFO, Optimal, LRU	Lecture + PPT	R1,R3
50	50	I/O Hardware and Device Controllers	Lecture + PPT	R1,R3
51	51	I/O Software and Interrupt Handling	Lecture + PPT	R1,R3
52	52	Disk Structure and Disk Scheduling Algorithms	Lecture + PPT	R1,R3
53	53	File Concept, File Types and Access Methods	Lecture + PPT	R1,R3
54	54	File Allocation Methods	Lecture + PPT	R1,R3
55	55	Free Space Management and Directory Structure	Lecture + PPT	R1,R3
56	56	Case Study: UNIX and Windows Operating Systems	Lecture + PPT	R1,R3

Study Material / Books / Web-resources / Online Courses Links etc.

S. No.	
1	Abraham Silberschatz, Peter Galvin, Greg Gagne, “Operating System Concepts Essentials”, 9th Edition, Wiley Asia Student Edition.
2	Naresh Chauhan, "Principles of Operating Systems,", Oxford University Press India, 2014.
3	William Stallings, “Operating Systems: Internals and Design Principles”, 5th Edition, Prentice Hall of India