Lesson Plan

Subject- BCA-352: Operating Systems-I

Class- BCA 5th Sem

Teacher- Ms. Ritu Baniwal

Week	Topics to be covered
Week 1	**Unit- 1** Operating System: Definition, Characteristics, Components, Functions, Examples
Week 2	**Unit- 1** Types of Operating System: Single User/Multi User, Classification of Operating System: Batch, Multiprogrammed, Timesharing, Multiprocessing, Parallel, Distributed, Real Time
Week 3	**Unit- 1** System Calls and System Programs: Process Control, File Manipulation, Device Manipulation, Information Maintenance, Communications Test
Week 4	**Unit- 2** Process Management: Process concept, Process states and Process Control Block; Process Scheduling: Scheduling Queues, Schedulers, Context Switch
Week 5	**Unit- 2** Operation on Processes: Process Creation, Process Termination; Cooperating Processes, Introduction to Threads, Inter-process Communication
Week 6	**Unit- 2** CPU Scheduling: Basic Concepts, Scheduling Criteria, Scheduling Algorithms: FCFS, SJF, Priority, Round-Robin, Multilevel Queue, Multilevel Feedback Queue Scheduling, Practice of Scheduling Examples Practice Tests
Week 7	**Unit- 3** Memory Management: Introduction, Swapping, Contiguous Allocation: Single-Partition/Multiple Partition Allocation, External/Internal Fragmentation; Paging: Basic Method, Hardware, Implementation of Page table
Week 8	**Unit- 3** Segmentation: Basic Method, Hardware, Implementation of Segment Table, Advantages/Disadvantages of Paging/Segmentation
Week 9	**Unit- 3** Deadlocks: System Model, Deadlock Characterization, Methods of Handling Deadlocks, Deadlock Prevention, Deadlock Avoidance
Week 10	Deadlocks continue: Deadlock Detection and Recovery Test
Week 11	**Unit- 4** Virtual Memory: Introduction, Demand Paging, Page Replacement, Page Replacement Algorithms: FIFO, Optimal, LRU, Counting; Thrashing and its cause Practice Tests
Week 12	**Unit- 4** File Management: File Concepts, File Attributes, File Operations, File Types, File Access/Allocation Methods, File Protection, File Recovery Test

Lesson Plan

Subject- B23-CSE-101: Problem Solving using C

Class- BCA 1ˢᵗ Sem

Teacher- Ms. Ritu Baniwal

Week	Topics to be covered
Week 1	Unit -1 Overview of C: History of C, Importance of C, Structure of a C Program.
Week 2	Unit -1 Elements of C: C character set, identifiers and keywords, Data types, Constants and Variables, Assignment statement, Symbolic constant.
Week 3	Unit -2 Operators & Expression: Arithmetic, relational, logical, bitwise, unary, assignment, conditional operators and special operators
Week 4	Unit -2 Arithmetic expressions, evaluation of arithmetic expression, type casting and conversion, operator hierarchy & associativity Decision making & branching: Decision making with IF statement, IF-ELSE statement, Nested IF statement, ELSE-IF ladder, switch statement, goto statement. Test
Week 5	Unit -3 Decision making & looping: For, while, and do-while loop, jumps in loops, break, continue statement Practice test
Week 6	Unit- 3 Functions: Definition, prototype, passing parameters, recursive functions
Week 7	Unit- 3 Arrays: One Dimensional Arrays- Declaration, Definition, types, initialization, processing an array, Two Dimensional Arrays- Declaration, initialization, Memory representation, passing arrays to functions
Week 8	Unit- 3 Strings & arrays Practice Test
Week 9	Unit -4 Pointers in C: Declaring and initializing pointers, accessing address and value of variables using pointers. Pointers and arrays.
Week 10	Unit- 4 User defined data types: Structures- Definition, Advantages of Structures, declaring structure variables, accessing structure members, Structure members initialization, Array of Structures;
Week 11	Unit- 4 Unions- Union definition; difference between Structure and Union.
Week 12	Revision & Tests

Lesson Plan

Subject- BCA-354: Computer Networks

Class- BCA 5ᵗʰ Sem

Teacher- Ms. Ritu Baniwal

Week	Topics to be covered
	Unit- 1
Week 1	Introduction to Data Communication and Computer Networks; Uses of Computer Networks; Types of Computer Networks and their Topologies
	Unit- 1
Week 2	Network Hardware Components: Connectors, Transceivers, Repeaters, Hubs, Network Interface Cards and PC Cards, Bridges, Switches, Routers, Gateways;
	Unit- 1
Week 3	Network Software: Network Design issues and Protocols; Connection-Oriented and Connectionless Services; OSI Reference Model; Networking Models: Distributed Systems
	Unit- 1
Week 4	Client/Server Model, Peer-to-Peer Model, Web-Based Model and Emerging File-Sharing Model Test
	Unit- 2
Week 5	Analog and Digital data and signals; Bandwidth and Data Rate, Capacity, Baud Rate; Transmission Impairment; Data Rate Limits;
	Unit- 2
Week 6	Guided Transmission Media; Wireless Transmission ; Communication Satellites; Switching and Multiplexing; Modems and Modulation techniques; ADSL and Cable Modems
	Unit- 3
Week 7	Data Link Layer Design issues; Error Detection and Correction; Sliding Window Protocols: One-bit, Go Back N and Selective Repeat; Media Access Control: ALOHA, Slotted ALOHA, CSMA, Collision free protocols; Practice Tests
	Unit- 3
Week 8	Introduction to LAN technologies: Ethernet, Switched Ethernet, Fast Ethernet, Gigabit Ethernet; Token Ring; Introduction to Wireless LANs and Bluetooth; VLANs
	Unit- 4
Week 9	Routing Algorithms: Flooding, Shortest Path Routing, Distance Vector Routing; Link State Routing, Hierarchical Routing;
	Unit- 4
Week 10	Congestion Control; Traffic shaping; Choke packets; Load shedding; Elements of Transport Protocols; Network Security Issues: Security attacks
	Unit- 4
Week 11	Encryption methods; Digital Signature; Digital Certificate
	Unit- 4
Week 12	Revision and Practice Tests