**Lesson Plan**

**Subject- BCA-354: Computer Networks**

**Class- BCA 5th Sem**

**Teacher- Ms. Ritu Baniwal**

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

**Lesson Plan**

**Subject- BCA-233: Computer Architecture**

**Class- BCA 3rd Sem**

**Teacher- Ms. Ritu Baniwal**

| **Week** | **Topics to be covered** |
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| Week 1 | **Unit- 1**  Basic Computer Organisation and Design: Instruction Codes, Computer registers, Computer Instructions |
| Week 2 | Timing and Control, Instruction Cycle, Memory reference instructions, |
| Week 3 | Input-Output and Interrupt, Design of Basic computer, Design of accumulator logic |
| Week 4 | **Unit- 2**  Register Transfer and Microoperations: Register Transfer Language (RTL), register transfer, Bus and Memory Transfers |
| Week 5 | **Unit- 2**  Arithmetic Microoperations, Logic Microoperations, Shift Microoperations, Arithmetic Logic Shift Unit |
| Week 6 | **Unit- 2**  Microprogrammed Control: Control memory; address sequencing, microprogram sequencer, Design of Control Unit |
| Week 7 | **Unit- 3**  Central Processing Unit: General registers Organization, Stack Organization, Instruction formats, Addressing Modes, |
| Week 8 | **Unit- 3**  Data Transfer and Manipulation, Program Control, Program Interrupt, RISC, CISC. |
| Week 9 | **Unit- 4**  Memory Organization: Memory hierarchy, Auxiliary Memory, Associative Memory, Interleaved memory, Cache memory, Virtual Memory |
| Week 10 | **Unit- 4**  Memory Management Hardware, Input Output Organization: Peripheral devices , Input-Output Interface |
| Week 11 | **Unit- 4**  Asynchronous data transfer, Modes of Transfer, Priority Interrupt, Direct Memory  Access (DMA), Input-Output Processor (IOP). |
| Week 12 | Revision & Tests |

**Lesson Plan**

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

**Class- BCA 1st Sem**

**Teacher- Ms. Ritu Baniwal**

| **Week** | **Topics to be covered** |
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| 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- BC (VOC)-305: Data Structure**

**Class- B.Com (CAV) 3rd Sem**

**Teacher- Ms. Ritu Baniwal**

| **Week** | **Topics to be covered** |
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| Week 1 | Introduction: Elementary data organization, Data Structure definition, Data type vs. data structure, Categories of data structures, Data structure operations, Applications of data structures |
| Week 2 | Arrays: Introduction, Linear arrays, Representation of linear array in memory |
| Week 3 | Traversal, Insertions, Deletion in an array, Multidimensional arrays |
| Week 4 | Linked List: Introduction, Array vs. linked list, Representation of linked lists in memory, Traversal, Insertion, Deletion, Searching in a linked list |
| Week 5 | Header linked list, Circular linked list, Two-way linked list, Garbage collection, Applications of linked lists. Algorithms for Insertion, deletion in array, Single linked list  Test |
| Week 6 | Stack: Introduction, Array and linked representation of stacks, Operations on stacks, Applications of stacks, Recursion. |
| Week 7 | Other Applications of stacks |
| Week 8 | Queues: Introduction, Array and linked representation of queues, Operations on queues, Dequeues, Priority Queues, Applications of queues.  Test |
| Week 9 | Tree: Introduction, Definition, Representing Binary tree in memory, Traversing binary trees |
| Week 10 | Traversal algorithms using stacks and using recursion. |
| Week 11 | Files: Serial, sequential, indexed, direct, multi-list |
| Week 12 | Revision & Tests |