**Office of the Principal CMG, G.C.W Bhodia Khera (Fatehabad)**

**Lesson Plan**

**Session :-** 2024-25

**Class:-** B.Sc. (C.Sc.)V Sem.

**Subject:-** CS-51 COMPUTER NETWORKS

**Month of July:-**

**Introduction to Data Transmission**: Representing Data as Analog Signals and Digital Signals, Data Encoding, Transmission Media: Guided and Wireless, Bandwidth, Capacity, Data Rate and Baud Rate, framing and errors, Asynchronous and Synchronous Communication.

**Month of August:-**

**Local Asynchronous Communication**: Introduction, LAN Topologies and their Media Access Control (MAC) protocols.

**Long Distance Communication**: Concept of Carrier Waves, Baseband, Broadband, Modulation, Demodulation, Switching (Packet Switching and Circuit Switching) and Multiplexing (FDM, TDM).

**Reference Models**: OSI and TCP/IP Models, various layers of Reference Models, communication between layers of Reference Models, various Protocols.

**Month of September:-**

**Data Link Layer**: Flow Control (Stop and Wait, Sliding Window), Error Detection (Parity Check and CRC), Error Correction (Stop and Wait, Go-back-N, Selective Reject)

**Month of October:-**

**Network Layer**: Addressing Schemes (Logical Addressing and Address Mapping), Routing Techniques (Flooding, Shortest Path, Distance Vector); Congestion Control in Packet Switching Networks.

**Network Security:** Issues, Introduction to Cryptography; Symmetric –Keys and Public-Keys,Authentication and Authorization, Firewall.

**Month of November:-**

**Network Security:** Issues, Introduction to Cryptography; Symmetric –Keys and Public-Keys, Authentication and Authorization, Firewall.

Teacher Name:- Ms. Sona Devi

Deptt.:- Computer Science

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**Lesson Plan**  **Session :-** 2024-25

**Class:-** B.Sc. (C.Sc. IIIrd Sem.)

**Subject:-** CS-32 DATA STRUCTURE

**Month of July:-**

Data structure and Algorithm Preliminaries: Definitions, The concept of Data Structure, Basic Terminology: Elementary Data Organization, Data Structure Operations, Algorithms: Algorithmic Notations, Control Structures, Complexity of Algorithms-Big ‘O’ Notation, Time-Space Tradeoff.

**Month of August:-**

Arrays: Introduction, Linear Arrays, Representation of Linear Arrays in Memory, Traversing Linear Arrays, Concatenating Two Arrays, Insertion into a Linear Array, Deletion from a Linear Array, Largest/Smallest Element from an Array, Linear Search, Binary Search. Introduction to Multidimensional Arrays, Address Calculation of Elements of Arrays, Multiplication of Two Matrices. Sorting: Bubble Sort, Selection Sort. Strings: Introduction to Strings, Basic Terminology, Storing Strings, String Operations

**Month of September:-**

Linked list: Introduction to Linked List, Representation of Linked List in Memory, Traversing a Linked List, Searching a Linked List, Insertion into a Linked List, Deletion from a Linked List, Header Linked Lists, Two way Linked List (Doubly Linked List): Introduction, Inserting a node into Two way Linked List, Deleting a node from Two way Linked List, Introduction to Circular Linked List.

**Month of October:-**

Stack: Introduction to Stacks, Array Representation of Stacks, Operations on stack,: PUSH and POP, Representation of Stack as Linked List, Polish Notations and Reverse Polish Notation, Evaluation of Postfix Expressions, Transforming Infix Expressions into Postfix Expressions, Transforming Infix Expressions into Prefix Expressions, Introduction to Recursion. Graphs: Introduction, Graph Theory Terminology, Sequential Representation of Graphs: Adjacency Matrix: Path Matrix , Linked Representation of a Graph, Shortest Path Algorithms.

**Month of November:-**

Queues: Introduction to Queues, Operations on the Queues: Enqueue and Dequeue, Circular Queue, Double Ended Queue(DEQUE), Representation of a Queue as an Array, Representation of a Queue as Linked List, Trees – Introduction, Basic Terminology, Binary Tree, Tree Representations using Array & Linked List, Binary Trees Traversing by Recursive procedures: Preorder In-order, & Post-order Traversal (NLR, LNR and LRN), Introduction to Binary Search Tree (BST), Insertion and Deletion in BST (only illustrations)

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