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

**Lesson Plan**

**Session :-** 2022-23

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

**Subject:-** Programming in ‘C++’

**Month of August:-**

Introduction to Programming C++: Object-Oriented Features of C++, Class and Objects,

Data Hiding & Encapsulation.

**Month of September:-**

Structures, Data members and Member functions, Inline Functions, Static Data Members and Member Functions, Friend Functions, Preprocessor Directives, Namespace, Comparing C with C++.

**Month of October:-**

Constructors & Destructors: Roles and types of Constructors, Roles of Destructors,Dynamic Memory Allocation: Pointers and their Manipulation, new and delete Operators‘this’ Pointer. Console I/O: Formatted and Unformatted I/O, Manipulators

**Month of November:-** Compile-Time Polymorphism: Unary and Binary Operators overloading through Member Functions and Friend Functions, Function Overloading. Inheritance: Types of Derivations, Forms of Inheritance, Roles of Constructors and Destructors in Inheritance.

**Month of December:-**

Generosity in C++: Template Function, Template Class, Inheritance and Templates. Exception Handling: try, throw and catch constructs, rethrowing an exception, catch all Handlers.

Teacher Name:- Ms. Sona Devi

Deptt.:- Computer Science

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

**Lesson Plan**

**Session :-** 2022-23

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

**Subject:-** Introduction to Data Base Systems

**Month of August:-** Basic Concepts – Data, Information, Records and files. Traditional file –based Systems-FileBased Approach-Limitations of File Based Approach, Database Approach-Characteristics ofDatabase Approach,

**Month of September:-** Database Management System (DBMS), Components of DBMS

Environment, DBMS Functions and Components, Advantages and Disadvantages of

DBMS. Roles in the Database Environment - Data and Database Administrator, Database

Designers, Applications Developers and Users.

**Month of October:-** Database System Architecture – Three Levels of Architecture, External, Conceptual and Internal Levels, Schemas, Mappings and Instances. Data Independence – Logical and Physical Data Independence. Classification of Database Management System, Centralized and Client Server architecture to DBMS. Data Models: Records- based Data Models, Object-based Data Models, Physical Data Models and Conceptual Modeling.

**Month of November:-** Entity-Relationship Model – Entity Types, Entity Sets, Attributes Relationship Types Relationship Instances and ER Diagrams. Basic Concepts of Hierarchical and Network Data Model

**Month of December:-** Relational Data Model:-Brief History, Relational Model Terminology-Relational Data Structure, Database Relations, Properties of Relations, Keys, Domains, Integrity Constraints

over Relations, Base Tables and Views.

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

**Lesson Plan**

**Session :-** 2022-23

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

**Subject:-** Programming in ‘C++’

**Month of August:-**

Introduction to Programming C++: Object-Oriented Features of C++, Class and Objects,

Data Hiding & Encapsulation.

**Month of September:-**

Structures, Data members and Member functions, Inline Functions, Static Data Members and Member Functions, Friend Functions, Preprocessor Directives, Namespace, Comparing C with C++.

**Month of October:-**

Constructors & Destructors: Roles and types of Constructors, Roles of Destructors,Dynamic Memory Allocation: Pointers and their Manipulation, new and delete Operators‘this’ Pointer. Console I/O: Formatted and Unformatted I/O, Manipulators

**Month of November:-**

Compile-Time Polymorphism: Unary and Binary Operators overloading through Member Functions and Friend Functions, Function Overloading. Inheritance: Types of Derivations, Forms of Inheritance, Roles of Constructors and Destructors in Inheritance.

**Month of December:-**

Generosity in C++: Template Function, Template Class, Inheritance and Templates. Exception Handling: try, throw and catch constructs, dethroning an exception, catch all Handlers.

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**Lesson Plan**

**Session :-** 2022-23

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

**Subject:-** **DATA STRUCTURE**

**Month of August:-** The concept of data structure, Abstract data type, data structure operations, algorithms complexity, time-space tradeoff. Introduction to strings, storing strings, string operations, pattern matching algorithms.

**Month of September:-**Linked list: Introduction and basic operations, Header nodes, Doubly Linked List, Circular Linked List, and Applications of Linked List.

**Month of October:-**.Stack: primitive operation on stack, Representation of Stack as Linked List and array, Stacks applications. Introduction to queues, Primitive Operations on the Queues, Circular queue, Priority queue, Representation of Queues as Linked List and array, Applications of queue.

**Month of November:-** Trees - Basic Terminology, Binary Trees, Tree Representations using Array & Linked List, Basic operation on Binary tree, Traversal of binary trees:- In order, Preorder & post order, Applications of Binary tree.

**Month of December:-** Introduction to graphs, Definition, Terminology, Directed, Undirected & Weighted graph, Representation of graphs. Searching: linear search, Binary search, Sorting: Insertion sort, Selection sort, Quick sort, Bubble sort.

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**Lesson Plan**

**Session :-** 2022-23

**Class:-** BA/B.Sc. (C.Sc.)I Sem.

**Subject:-** COMPUTER FUNDAMENTALS

**Month of August:-** Introduction to Information Technology, concept of bit and byte, binary, octal, decimal and hexa-decimal number systems and their conversion

**Month of September:-**

Data representation, complement form, BCD codes, fixed point and floating point representation Computer and its components, minicomputer, micro computer, personal computer, super computer, notebook/ laptop,

**Month of October:-**. Networking of computers, Local Area Network, Metropolitan Area Network, Wide Area Network, network topologies: Bus, Ring, Star, Mesh and Hybrid, Internet and Intranet, modem.

**Month of November:-**

Memory Organization: Memory hierarchy, RAM, ROM, dynamic RAM, flash memory, secondary memory and its characteristics, hard disk drives, cache memory and its organization, floppy drive and

CD/ DVD drive.

**Month of December:-**

Peripheral devices: common input and output devices, printer, plotter, scanner, joy stick, web camera,

Touch panel, light pen and card reader.

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**Lesson Plan**

**Session :-** 2022-23

**Class:-** BA/B.Sc. (C.Sc.)I Sem.

**Subject:-** DIGITAL ELECTRONICS

**Month of August:-**

Information Representation: Number Systems, Binary Arithmetic, Fixed-point and Floating- point representation of numbers, BCD Codes

**Month of September:-** , Error detecting and correcting codes, Character Representation – ASCII, EBCDIC, Unicode Binary Logic: Boolean Algebra, Boolean Theorems, Boolean Functions and Truth Tables, Canonical and Standard forms of Boolean functions, Simplification of Boolean Functions –Venn Diagram, Karnaugh Maps.

**Month of October:-**.

Digital Logic: Basic Gates – AND, OR, NOT, Universal Gates – NAND, NOR, Other Gates – XOR, XNOR etc. NAND, NOR, AND-OR-INVERT and OR-AND-INVERT

**Month of November:-** Implementations of digital circuits, Combinational Logic – Characteristics, Design Procedures, analysis procedures, Multilevel NAND and NOR circuits.

**Month of December:-**

Combinational Circuits: Half-Adder, Full-Adder, Half-Subtractor, Full-Subtractor, Encoders, Decoders, Multiplexers, Demultiplexers, Comparators, Code Converters, BCD to Seven- Segment Decoder.

Teacher Name:- Sona Devi

Dept.:- Computer Science