**Lesson Plan**

**BCA III (6thSem)**

**Subject: Computer Graphics**

**Month : April (15.4.2022 to 30.04.2022)**

Introduction to Computer Graphics; Interactive and Passive Graphics; Applications of Computer Graphics; Display Devices: CRT; Random Scan, Raster Scan, Refresh Rate and Interlacing, Bit Planes, Color Depth, Color Palette, Color CRT Monitor, DVST, Flat-Panel Displays: Plasma Panel, LED, LCD; Lookup Table, Point-Plotting Techniques: Scan Conversion, Scan-Converting a Straight Line: The Symmetrical DDA, The Simple DDA, Bresenham’s Line Algorithm; Scan-Converting a Circle: Circle drawing using Polar Coordinates, Bresenham’s Circle Algorithm,

**May (1.5.2022 to 31.5.2022)**

Scan-Converting an Ellipse: Polynomial Method, Trigonometric Method; Polygon Area Filling: Scan-line Fill and Flood Fill Algorithms; Two-Dimensional Graphics Transformation: Basic Transformations: Translation, Rotation, Scaling; Matrix Representations and Homogeneous Coordinates; Other Transformations: Reflection, Shearing; Coordinate Transformations; Composite Transformations; Inverse Transformation; Affine Transformations; Raster Transformation.

**June ( 1.6.2022 to 30.6.2022)**

Two-Dimensional Viewing: Window and Viewport, 2-D Viewing Transformation Clipping: Point Clipping; Line Clipping: Cohen-Sutherland Line Clipping Algorithm, Mid-Point Subdivision Line Clipping Algorithm; Polygon Clipping: Sutherland-Hodgman Polygon Clipping Algorithm.

**July (1.7.2022 to 15.7.2022)**

Three-Dimensional Graphics: Three-Dimensional Display Methods; 3-D Transformations: Translation, Rotation, Scaling; Composite Transformations;Display Processor, General Purpose Graphics Software, Coordinate Representations;Graphical Input: Pointing and Positioning Devices and Techniques

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**Lesson Plan**

**BCA II**

**BCA – 241 ADVANCED DATA STRUCTURE**

**Month : April (15.01.2022 to 30.4.2022)**

Tree: Introduction, Definition, Representing Binary tree in memory, Traversing binary trees, Traversal algorithms using stacks, Binary search trees: introduction, storage,General trees.

**May (1.5.2022 to 31.5.2022)**

Searching, Insertion and deletion in a Binary search tree, Huffman’s algorithm, Graph: Introduction, Graph theory terminology, Sequential and linked representation of graphs, operations on graphs, traversal algorithms in graphs and their implementation, Warshall’s algorithm for shortest path, Dijkstra algorithm for shortest path.

**June (1.6.2022 to 30.6.2022)**

Sorting: Internal & external sorting, Radix sort, Quick sort, Heap sort, Merge sort, Tournament sort, Comparison of various sorting and searching algorithms on the basis of their complexity.

**July (1.7.2022 to 15.07.2022)**

Files: Introduction Attributes of a file, Classification of files, File operations, Comparison of various types of files, File organization: Sequential, Indexed-sequential, Random-access file. Hashing: Introduction, Collision resolution.

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**Lesson Plan**

**BCA II**

**BCA – 246 MANAGEMENT INFORMATION SYSTEM**

**Month : April (15.01.2022 to 30.4.2022)**

Introduction to system and Basic System Concepts, Types of Systems, The Systems Approach, Information System: Definition & Characteristics, Types of information, Role of Information in DecisionMaking, Sub-Systems of an Information system: EDP and MIS management levels, EDP/MIS/DSS.

**May (1.5.2022 to 31.5.2022)**

An overview of Management Information System: Definition & Characteristics, Components of MIS, Frame Work for Understanding MIS: Information requirements & Levels of Management, Simon's Model of decision-Making, Structured Vs Un-structured decisions, Formal vs. Informal systems.

**June (1.6.2022 to 30.6.2022)**

Developing Information Systems: Analysis & Design of Information Systems: Implementation & Evaluation, Pitfalls in MIS Development.Functional MIS: A Study of Personnel, Financial and production MIS, Introduction to e-business systems.

**July (1.7.2022 to 15.07.2022)**

ecommerce – technologies, applications, Decision support systems – support systems for planning, control and decision-making.

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**Lesson Plan**

**PGDCA**

**CS-DE-13 Data StructureS**

**Month : April (15.01.2022 to 30.4.2022)**

Trees: Binary Trees, Representation of binary trees in memory, Threaded Binary Trees, Balanced Tree, Different tree traversal algorithms, Binary Search Tree: Searching, Insertion, and deletion in a Binary search tree, Heap Sort.

**May (1.5.2022 to 31. 5. 2022)**

Representation of Graphs and Applications: Adjacency Matrix, Path Matrix, Warshall’s Algorithm, Linked Representation of a Graph, Traversing a Graph;

**June(2.6.2022 to 30.6.2022)**

Sorting and Searching: Radix Sort, Merge Sort, Linear Search, Binary Search, Insertion Sort, Selection Sort, Bubble Sort.

**July (1.7.2022 to 30.7.2022)**

Linked Lists: Representation of linked list in memory, Traversal, Searching, Insertion, Deletion, Sorted Linked List, Header List, Two – Way List;String Processing: Storing strings, String operations, Pattern matching algorithms.

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**Lesson Plan**

**B.Sc Computer Science (3rd Sem)**

**PAPER I: Object Oriented Programming with C++**

**Month : April (15.01.2022 to 30.4.2022)**

Object oriented Programming: Object-Oriented programming features and benefits. Object-Oriented features of C++, Class and Objects, Data Hiding & Encapsulation, Structures, Data members and Member functions, Scope resolution operator and its significance, Static Data Members, Static member functions, Nested and Local Class, Accessing Members of Class and Structure.

**May(1.5.2022 to 31.5.2022)**

Constructor, Initialization using constructor, types of constructor– Default, Parameterized & Copy Constructors, Constructor overloading, Default Values to Parameters, Destructors, Friend Function, Friend Class, Arrays, Array of Objects, Passing and Returning Objects to Functions, Pointers, new and delete Operator, Array of Pointers to Objects, this Pointer, Passing Parameters to Functions by Reference & pointers.

**June (1.6.2022 to 30.6.2022)**

Static Polymorphism: Operators in C++, Precedence and Associativity Rules, Operator Overloading, Unary & Binary Operators Overloading, Function Overloading, Inline Functions, Merits/Demerits of Static Polymorphism. Manipulators,

**July (1.7.2022 to 15.7.2022)**

Console I/O: Hierarchy of Console Stream Classes, Unformatted and Formatted I/O Operations.

**Ms. Sonia**

**(Deptt. of Computer Science)**

**Lesson Plan**

**B.Sc Computer Science (3rd Sem)**

**PAPER II: Operating System**

**Month : April (15.01.2022 to 30.4.2022)**

Introduction: operating system, architecture, functions, characteristics, historical evolution, types: Serial batch, multiprogramming, time sharing, real time, distributed and parallel. OS as resource Manager. Computer system structures: I/O structure, storage structure, storage hierarchy. Operating system structure: system components, services, system calls, system programs, system structures.

**May (1.5.2022 to 31. 5. 2022)**

Process management: process concepts, process state, process control block, operations, process scheduling, inter process communication. CPU Scheduling: scheduling criteria, levels of scheduling, scheduling algorithms, multiple processor scheduling. Deadlocks: Characterization, methods of handling, deadlock detection, prevention, avoidance, recovery.

**June(2.6.2022 to 30.6.2022)**

Storage Management: memory management of single-user and multiuser operating system, partitioning, swapping, paging and segmentation, virtual memory, Page replacement Algorithms, Thrashing. Process synchronization: critical section problems, semaphores. Mutual exclusion

**July (1.7.2022 to 30.7.2022)**

Device and file management: Disk scheduling, Disk structure, Disk management, File Systems: Functions of the system, File access and allocation methods, Directory Systems: Structured Organizations, directory and file protection mechanisms.

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