**Lesson Plan**

**Subject- BCA-232: Data Structures**

**Class- BCA 3rd Sem**

**Teacher- Ms. Reena Rani**

|  |  |
| --- | --- |
| **Week** | **Topics to be covered** |
| Unit 1 | **Unit- 1**  Introduction: Elementary data organization, Data Structure definition, Data type vs. data structure, Categories of data structures, Data structure operations, Applications of data structures, Algorithms complexity and time-space tradeoff, Big-O notation. |
|  | Strings: Introduction, String strings, String operations, Pattern matching algorithms.  Test |
| Unit 2 | **Unit- 2**  Arrays: Introduction, Linear arrays, Representation of linear array in memory, Traversal, Insertions, Deletion in an array, Multidimensional arrays, Parallel arrays, Sparse matrices |
|  | Linked List: Introduction, Array vs. linked list, Representation of linked lists in memory, Traversal, Insertion, Deletion, Searching in a linked list |
|  | 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 |
| Unit 3 | **Unit- 3**  Stack: Introduction, Array and linked representation of stacks, Operations on stacks, Applications of stacks: Polish notation, Recursion. |
|  | Other Applications of stacks |
|  | Queues: Introduction, Array and linked representation of queues, Operations on queues, Deques, Priority Queues, Applications of queues.  Test |
| Unit 4 | **Unit- 4**  Tree: Introduction, Definition, Representing Binary tree in memory, Traversing binary trees |
|  | Traversal algorithms using stacks and using recursion. |
|  | Graph: Introduction, Graph theory terminology, Sequential and linked representation of graphs. Graph Algorithms |
|  |  |

**Lesson Plan**

**Subject- Problem solving through C(B23-CSE-101)**

**Class- BA(CS) 1st Sem**

**Teacher- Ms. Reena Rani**

|  |  |
| --- | --- |
| **Week** | **Topics to be covered** |
| Unit 1 | Unit -1  Overview of C: History of C, Importance of C, Structure of a C Program. |
|  | Unit -1  Elements of C: C character set, identifiers and keywords, Data types, Constants and Variables, Assignment statement, Symbolic constant. |
| Unit 2 | Unit -2  Operators & Expression: Arithmetic, relational, logical, bitwise, unary, assignment, conditional operators and special operators |
|  | Unit -2  Arithmetic expressions, evaluation of arithmetic expression, type casting and conversion, operator hierarchy & associativity |
|  | Unit -2  Decision making & branching: Decision making with IF statement, IF-ELSE statement,  Nested IF statement, ELSE-IF ladder, switch statement, goto statement.  Test |
|  | Unit -3  Decision making & looping: For, while, and do-while loop, jumps in loops, break, continue statement  Practice test |
| Unit 3 | Unit- 3  Functions: Definition, prototype, passing parameters, recursion  Test |
|  | Unit- 4  Arrays: Definition, types, initialization, processing an array, passing arrays to functions |
|  | Unit- 4  Strings & arrays  Test |
| Unit 4 | Pointer in C: Declaring and initializing pointers, accessing address and value of variable using pointers, Pointer and array  Structure ,declaring structure variable,structure and union, array of structure. |
|  | Revision & Tests |

**Lesson Plan**

**Subject- System Analysis and Design**

**Class- B.Com (CAV) 5th Sem**

|  |  |
| --- | --- |
| **Week** | **Topics to be covered** |
| Unit 1 |  |
|  | System Concept Definition, Characteristics, Elements of system  Types of System: Physical and abstract system,Open and closed system  Man-made information systems.  System Development Life Cycle: Phases of system development .Feasibility study: Technical, Operational & Economic Feasibilities.Role of system analyst |
| Unit 2 | System Planning: Bases for planning in system analysis.  Initial Investigation: Determining user’s requirements and analysis, fact finding process and techniques.  Tools of structured Analysis: Data Flow diagram, data dictionary, IPO and HIPO charts, Gantt charts, pseudo codes, Flow charts, decision tree, decision tables. |
| Unit 3 | Cost/Benefit Analysis: Data analysis cost and benefit analysis of a system.  Input/ Output and Form Design, File Organization and database design:  Introduction to files and database, File structures and organization, objectives of database design, logical and physical view of data. |
| Unit 4 | System testing: Introduction, objectives of testing, test planning, testing techniques. Quality assurance: Goal of quality assurance, levels of quality assurance  System implementation and software maintenance: primary activities in maintenance |