**Lesson Plan**

**Data Base Management System-I**

**Class- B.Com(Voc) 3rd semester**

**Code: A 3.05**

**August 2023:**

Basic concepts and definitions, Data Dictionary, Database, DBMS, Operations performed on DBMS System, DBA, File Oriented System versus Database System, Database system Environment, Database Languages: DDL, DML, Data Control Language(DCL), Data Query Language(DQL), Transaction Control Language(TCL

**September 2023:**

Introduction, Schemas, Sub Schemas, Instances, Levels of Database Architecture. Data Independence, Structure, Components and Functions of DBMS, Data Models, Types of Database System(DBMS),Structure of Relational Database, Keys of Relations ), Advantage and Disadvantage of DBMS, Basic concept of Files: File Types, File Organization Techniques.

**October 2023:**

Software Development Life Cycle (SDLC), Development Cost and Structure System Analysis and Design (SSAD), Database Development Life Cycle (DDLC), Database Design, Automated Design Tools, Normalization: Normal Forms: 1st, 2nd and 3rd NF, BCNF, 4NF and 5NF.Functional Dependency and Decomposition Techniques.

**November 2023**

Techniques: - Transaction Processing and Concurrency Control Methods. Data Manipulation: Create, Modify, Insert, Delete and Update, Searching and Matching, Oracle Functions, Oracle Transactions(Revoke, Rollback, Commit statements)

**Dr Usha Dahiya**

**Associate professor in Computer Science**

**Lesson Plan**

**Paper: Structural Programming & Computer Graphics- 1**

**Class- B.Com(Voc) 3rd semester**

**Code: A 3.06**

**August 2023**

Purpose of Program Planning, Methods of analyzing program requirements, Representations of Algorithms, Flow Charts: Flowchart Symbols, Levels of Flowcharts, Flow Chart Rules, Advantage & Disadvantage of Flow Chart.

**September 2023**

Concept of structural programming, Basic Constructs of Structural Programming: Sequence, Selection, Repetition (Iteration), Advantage of ‘C’ Language, Data types, Constant, Variable, Keywords, Structure of ‘C’ program, arithmetic Operators, bitwise operators, conditional operators; IF statements, Switch statements, GoTo Statement

**October 2023**

Definition, Role of Graphics in various fields e.g.: (CAD) Computer Aided Design/Drafting Package, Animators, (DTP) Desktop Packages, Types of Graphics, Hardware & Software used in Graphics, Graphics Primitives, Application of Computer Graphics, Graphics Functions, Types of Printer using in DTP, Types of Graphics Card, Categories of Fonts, Style and Size.

**November 2023**

Arrays, single dimensional array, advantages of arrays, string of arrays, string functions ( strrev, strupr, strcat, strcpy, strcmp) and programming of these functions without using direct functions

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**Lesson Plan**

**DATA BASE MANAGEMENT SYSTEMS**

**PAPER CODE: 16MCS21C3**

**M.Sc 1 Semester**

**Sept 2023**

Introduction: Characteristics of database approach, data models, DBMS architecture and data independence. E-R Modeling: Entity types, Entity set, attribute and key, Relationships, Relation types, Roles and Structural constraints, Weak entities, Enhanced ER Model. Database Languages: DDL, DML, Database Access for applications Programs, Database Users and Administrator, Transaction Management, Database system Structure, Storage Manager, Query Processor.

**October 2023**

Relational Model: Introduction to the Relational Model, Integrity Constraint over Relations, Enforcing Integrity constraints, Querying relational data, Logical data base Design, Introduction to views, Destroying/altering Tables and Views. Relational Algebra and Calculus: Relational Algebra, Set operations, Selection and projection, renaming, Joins, Division, Examples of Algebra overviews,

**November 2023**

Schema Refinement, Functional dependencies: Problems Caused by redundancy, Decompositions, Problem related to decomposition, Normalization : FIRST, SECOND, THIRD Normal forms, BCNF, Lossless join Decomposition, Dependency preserving Decomposition, Schema refinement in Data base Design, Multi valued Dependencies, forth Normal Form

**December 2023**

Concurrency Control: Introduction to Lock Management, Lock Conversions, Dealing with Dead Locks, Concurrency without Locking, Recovery Techniques, Database Security. Introduction to Oracle : Getting started, Modules of Oracle, Invoking SQLPLUS, Data types, Data Constraints, Operators, Data manipulation - Create, Modify, Insert, Delete and Update; Searching, Matching and Oracle Functions. SQL\* Forms: Basic concepts, Form Construction, Creating default form, user-defined form, multiple-record form, Master-detail form.

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**Lesson plan**

**OBJECT ORIENTED PROGRAMMING USING C++**

**PAPER CODE: 16MCS22C2**

**MSc 2 sem**

**January 2024**

Object Oriented Programming Concepts: Procedural Language and Object Oriented approach. Characteristics of OOP: Objects, classes, Encapsulation, Data Abstraction, Inheritance, Polymorphism, Dynamic Binding, Message Passing. Structure of C++ program: Data-types, Variables, Static Variables, Operators in C++, Arrays, Strings, Structure, Functions, Recursion, Control Statements.

**February 2024**

Classes: Class, object, Memory Allocation for Objects, memory layout of objects, private, public, protected member functions, static members. Constructors: Features, types, dynamic constructor, Parameterized constructors; destructors. Memory management: Dynamic Memory allocation: new, delete, Object Creation at Run Time; This Pointer.

**March 2024**

Inheritance: Derived Class and Base Class, Different types of Inheritance, Overriding member function, Public and Private Inheritance, Ambiguity in Multiple inheritance, Virtual Inheritance, Abstract Class. Polymorphism: Definition, operator overloading, Overloading Unary and Binary Operators, Function overloading, Virtual function, Friend function, Static function.

**April 2024**

Exception handling: Throwing, Catching, Re-throwing an exception, specifying exceptions; processing unexpected exceptions; Exceptions when handling exceptions, resource capture and release.

Templates: Introduction; Class templates; Function templates; Overloading of template function, namespaces. Introduction to STL: Standard Template Library: benefits of STL; containers, adapters, iterators, vector, lists.

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