**Post Graduate Govt. College for Girls, Sector-42, Chandigarh**

**Teaching Plan (Odd Semester) Session (2019-2020)**

**Name of the Teacher: Ramninder Kaur Subject: Information Technology (E)**

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|  |  | **Class: BA/B.Sc IT 3sem**  **Paper: Computer Programming using C++** | **Class: BA/B.Sc IT 5sem**  **Paper: Database System and VB .NET** | |
| **S. No** | **Dates** | **Topics to be Covered** | **Topics to be Covered** | |
| Week 1 | 23-07-19 to  27-07-19 | Concepts of Object Oriented Programming: Introduction to OOP, Difference between OOP and Procedure Oriented Programming, Object, Class, Encapsulation, Abstraction, Polymorphism, Inheritance. | Introduction to RDBMS: Approaches to Data Management, Database management - An Evolutionary Phenomenon, Introduction to DBMS, The 12 Rules (Codd’s Rule) for an RDBMS, Relational Database Management System (RDBMS). | |
| Week 2 | 29-07-19 to  03-08-19 | Structure of a C++ Program and I/O streams.  Classes and Objects, Class Declaration, Data Members, Member Functions, Private and Public members | Introduction to SQL : Introduction to SQL, Data Types, Querying database tables, Conditional retrieval of rows, Working with Null Values, Matching a pattern from a table, ordering the result of a Query Aggregate Functions | |
| Week 3 | 05-08-19 to  10-08-19 | Creating Objects, Accessing class data members, Accessing member  functions Class Function Definition: Member Function definition inside the class declaration | Grouping the Result of a Query using group by and having clause, ROLLUP Operation: Getting Sub Totals, CUBE Operation: Getting Cross Tabs, Command Summary. | |
| Week 4 | 13-08-19 to  17-08-19 | Member Function definition outside the class declaration, friend function, inline function, static function.  Scope resolution operator, Private and Public member function, Nesting of member functions | Querying Multiple Tables: Collating Information: Equi Joins, Cartesian Joins, Outer Joins, Self Joins, SET Operators: Union, Intersect, Minus; Nested Queries. | |
| Week 5 | 19-08-19 to  24-08-19 | Arrays within a class. Arrays of Objects, Objects as function arguments: Pass by value, Pass by reference, Pointers to Objects | Functions: Functions, Column Functions: Arithmetic Functions, Character Functions, Date Functions, General Functions, Group Functions. | |
| Week 6 | 26-08-19 to  31-08-19 | Constructors and Destructors: Declaration and Definition,  Types of Constructors,(Default, Parameterized, Copy Constructors).  Destructors: Definition and use. | Data Manipulation and Control-I Data Definition Language (DLL), Creating Tables, Creating a Table with data from Another table, Inserting Values into a Table, Updating Column(s) of a Table, Deleting Row(s) From a Table, Dropping a Column | |
| Week 7 | 02-09-19 to  07-09-19 | Function Overloading & Operator Overloading: concept and implementation | Introduction to Views, Manipulating the Base table(s) through views, Rules of DML Statements on Join Views, Dropping a View | |
| Week 8 | 09-09-19 to  14-09-19 | Inheritance - Extending Classes Concept of inheritance, Base class, Defining derived classes, Visibility modes :Public, Private, Protected ; Single inheritance : Privately derived, Publicly derived | Data Manipulation and Control-II Database Security and Privileges, Grant Command, Revoke Command, Application Privileges Management, Enhancing Performance, Sequences, Maintaining Database Objects, COMMIT and ROLLBACK. | |
| Week 9 | 16-09-19 to  21-09-19 | Making a protected member inheritable, Access Control to private and protected members by member functions of a derived class | Overview of the visual Studio .NET IDE: Menu Bar and Tool Bar, Solution Explorer, ToolBox, Properties, Displaying and printing Text, Displaying Image, Arithmetic, relational operators, assignment operators. | |
| Week 10 | 23 to 28-09-19 (Youth Festival  24 to 27-09-19) | Multilevel inheritance.  Nesting of classes. | Control structures (branching, looping)  Inline Views, Materialized Views. | |
| Week 11 | 30-09-19 to  05-10-19 | Polymorphism: Definition, Application and demonstration of Data Abstraction, Encapsulation and Polymorphism. | Procedures : Introduction, Modules, classes, sub Procedures, function procedures, passing arguments (pass by value Vs pass by reference), Recursion: factorial, Fibonacci series | |
| Mid Semester Exams | | | | |
| Week 12 | 16-10-19  to  19-10-19 | Early Binding, Polymorphism with pointers, Virtual Functions, Late binding, pure virtual functions. | | PL/SQL-I Introduction to PL/SQL, The Advantage of PL/SQL Block Structure, PL/SQL Architecture, Fundamentals of PL/SQL, PL/SQL Data Types, Variables and Constants, Scope and Visibility of a Variable, Assignments, and Expressions |
| Week 13 | 21-10-19  To  26-10-19 | File Processing : Opening and closing of file, stream state member functions, Binary file operations, | | Operator Precedence, Referencing Non-PL/SQL Variables, Built-in Functions, Conditional and Iterative |
| Week 14 | 29-10-19  To  02-11-19 | Structures and file operations,  Classes and file operations, Random file processing. | | Control SQL Within PL/SQL, Writing PL/SQL Code, Composite Datatypes. |
| Week 15 | 04-11-19  To  09-11-19 | Data Structures: Basic Concepts and notations, introduction to Complexity, Data Structure operations ,applications of Data Structure | | PL/SQL-II Cursor Management in PL /SQL, Cursor Manipulation, Implicit cursor Attributes, Exception Handling in PL/ SQL , Predefined Exceptions, User Defined Exception. |
| Week 16 | 11-11-19  to  16-11-19 | Arrays: Introduction, Types of Array, Memory representation, applications and operations.  Stacks: Array representation of a stack, operations- initialization, push, pop, empty, and full; applications of stacks. | | Arrays and Strings: declaring and allocating Arrays, passing Arrays to procedures. Sorting Arrays using Bubble Sort, searching Arrays using Linear Search, Binary Search, String functions in VB. |
| Week 17 | 18-11-19  To  23-11-19 | Queue: introduction, memory representation, operations- add, remove, initialization; applications. | | Accessing Data with ADO.NET: Understanding ADO.net Object model, architecture, and components, Database, Connecting to and querying an access data source |
| Week 18 | 25-11-19  to  30-11-19 | Linked List:  Introduction, declaration, operations:-traversing, searching, inserting, deleting; Introduction to circular list. | | Creating Applications which can Insert, Delete, and Update information from a database using SQL statements, viewing data using DataGrid View Control. |