Course Code	Course Name	Course Category	L-T-P	Credits
CS1281	Programming through C++ Laboratory	PCC	0-0-3	1.5

Course Learning Objective:

1. To strengthen their problem solving ability by applying the characteristics of an object- oriented approach.
2. To introduce object oriented concepts in C++ and Java.

List of Programming Assignments for Laboratory

Exercise – 1

a)Write a C++ program illustrating a program to find the roots of a quadratic equation use switch statements to handle different values of the discriminant (b^2-4*a*c).

b) Write a C++ program illustrating to sort integer numbers

c) Write a C++ program illustrating factorial using recursion.

Exercise – 2

a) Write a program to implement call by value and call by reference using reference variable.

b) Write a program to illustrate scope resolution, new and delete Operators. (Dynamic Memory Allocation)

c) Write a program to illustrate Storage classes

d) Write a program to illustrate Enumerations

Exercises –3

a) Write a program illustrating Inline Function

b) Write a program illustrates function overloading.

c) Write a program illustrates the use of default arguments for simple interest function.

Exercise - 4

a) Write a program to illustrate function overloading.

b) Write a program illustrate function template for power of a number.

c) Write a program to illustrate function template for swapping of two numbers.

Exercise -5

Create a Distance class with:

• Feet and inches as data members

• Member function to input distance

• Member function to output distance

• Member function to add two distance objects

a).Write a main function to create objects of DISTANCE class. Input two distances and output the sum.

b). Write a C++ Program to illustrate the use of Constructors and Destructors (use the above program.)

c) Write a program for illustrating function overloading in adding the distance between objects (use the above problem)

d). Write a C++ program demonstrating a Bank Account with necessary methods and variables

Exercise – 6

Write a program for illustrating Access Specifiers public, private, protected

a) Write a program implementing Friend Function

b) Write a program to illustrate this pointer

c) Write a Program to illustrate pointer to a class

Exercise -7

a). Write a program to Overload Unary, and Binary Operators as Member Function, and Non Member Function.

i. Unary operator as member function

ii. Binary operator as non member function

b). Write a c ++ program to implement the overloading assignment = operator

Exercise -8

a) Write C++ Programs and incorporating various forms of Inheritance

i) Single Inheritance

ii) Hierarchical Inheritance

iii) Multiple Inheritances

iv) Multi-level inheritance

v) Hybrid inheritance

b) Write a program to show Virtual Base Class

Exercise-9

a) Write a Program in C++ to illustrate the order of execution of constructors and destructors in inheritance

b) Write a Program to show how constructors are invoked in derived class

c) Write a program to illustrate runtime polymorphism

d) Write a program to illustrate this pointer

Exercise -10

a) Write a C++ Program to illustrate template class

b) Write a Program to illustrate class templates with multiple parameters

c) Write a Program to illustrate member function templates

Exercise -11

a).Write a Program for Exception Handling Divide by zero

b). Write a Program to rethrow an Exception

c) Write a Program to implement List and List Operations

Exercise -12

a) Write a Program to implement Vector and Vector Operations

b) Write a Program to implement Deque and Deque Operations

c) Write a Program to implement Map and Map Operations

Course outcomes

At the end of the course, the student will be able

CO 1	Explain what constitutes an object-oriented approach to programming
CO 2	Identify potential benefits of object-oriented programming over other approaches
CO 3	Apply an object-oriented approach to developing applications of varying complexities

Assessment Method

Assessment Tool	Experiments	Report/Viva-Voce/ Quiz/MCQ/Lab project	Total
Weightage (%)	25%	15%	40%
End Semester Examination weightage (%)			60%

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