

Object Oriented Programming Using C++

Laboratory Title: OOPS using C++	Course. Code: ---
Total Hours: 40	Duration of SEE Hours: 3
SEE Marks: 50	CIE Marks: 50
Lab. Plan Author Prof V.R .Mane	Date: 10-07-2019
Checked By: Prof. V B Pattenshetty	Date: 12-07-2019

Course objectives: This course will enable students to:

- Define Encapsulation, Inheritance and Polymorphism.
- Solve the problem with object oriented approach.
- Analyze the problem statement and build object oriented system model.
- Describe the characters and behavior of the objects that comprise a system.
- Explain function overloading, operator overloading and virtual functions.
- Discuss the advantages of object oriented programming over procedure oriented programming.

Content	hrs
Unit – 1	
Beginning with C++ and its features: What is C++?, Applications and structure of C++ program, Different Data types, Variables, Different Operators, expressions, operator overloading and control structures in C++ (Topics from Ch -2,3 of Text).	10hrs
Functions, classes and Objects: Functions, Inline function, function overloading, friend and virtual functions, Specifying a class, C++ program with a class, arrays within a class, memory allocation to objects, array of objects, members, pointers to members and member functions (Selected Topics from Chap-4,5 of Text)	10hrs
Unit – 2	

Constructors, Destructors Constructors, Multiple constructors in a class, Copy constructor, Dynamic constructor, Destructors, Defining operator overloading, Overloading Unary and binary operators, Manipulation of strings using operators (Selected topics from Chap-6 of Text).	5hrs
Operator overloading: operator overloading, Overloading Unary and binary operators, Manipulation of strings using operators (Selected topics from Chap- 7 of Text).	5hrs
Unit – 3	
Inheritance, Pointers, Virtual Functions, Polymorphism: Derived Classes, Single, multilevel, multiple inheritance, Pointers to objects and derived classes, this pointer, Virtual and pure virtual functions (Selected topics from Chap-8, 9 of Text).	5hrs
Managing console I/O operations: C++ streams and stream classes, formatted and unformatted I/O operations, Output with manipulators.	5hrs

Evaluation Scheme

CIE Scheme

Assessment	Weightage in Marks
MINOR-I	20
MINOR-II	20
COURSE PROJECT	10
Total	50

Competency addressed in the Course and corresponding Performance Indicators

Competency: PO1.4	Demonstrate competence in electronics and communication engineering knowledge
PI Code: PO1.4.5	Apply Programming Skills
Competency: PO4.2	Demonstrate their ability to design experiments to solve open ended problems
PI Code: PO4.2.3	Understand the importance of statistical design of experiments and choose an appropriate experimental design plan based on the study objectives
Competency: PO4.3	Demonstrate an ability to critically analyze data to reach a valid conclusion
PI Code: PO4.3.4	Synthesize information and knowledge about the problem from the raw data to reach appropriate conclusions
Competency: PO5.1	Demonstrate an ability to identify/ create modern engineering tools, techniques and resources
PI Code: PO5.1.1	Identify modern engineering tools, techniques and resources for engineering activities
Competency: PO9.1	Demonstrate an ability to form a team and define a role for each member.
PI Code: PO9.1.1	Recognize a variety of working and learning preferences; appreciate the value of diversity on a team
Competency: PO10.1	Demonstrate an ability to comprehend technical literature and document project work.
PI Code: PO10.1.3	Create flow in a document or presentation - a logical progression of ideas so that the main point is clear