KARNATAK LAW SOCIETY'S

GOGTE INSTITUTE OF TECHNOLOGY

UDYAMBAG, BELAGAVI-590008

(An Autonomous Institution under Visvesvaraya Technological University, Belagavi)

(APPROVED BY AICTE, NEW DELHI)

SKILL LABS

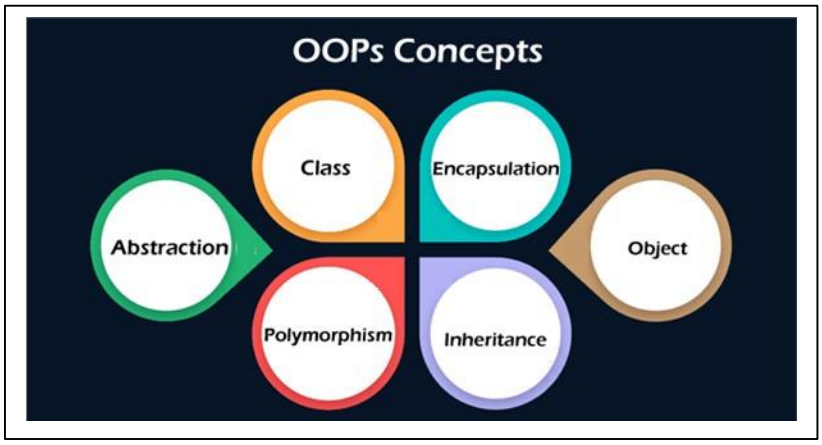
FOR

V Semester Information Science & Engineering Students

DEPARTMENT OF

INFORMATION SCIENCE & ENGNEERING

KLS GOGTE INSTITUTE OF TECHNOLOGY



Elevating Object Oriented Programming Skills

FOR

Students of V Semester

Overview

The Object-Oriented Programming (OOP) Skill Lab introduces students to essential programming concepts using C++. It focuses on core OOP principles, such as encapsulation, inheritance, polymorphism, and abstraction, which are foundational to modern software design. Through hands-on exercises, students gain practical experience in building structured and reusable code. OOP is integral to designing complex systems that simulate real-world entities and their interactions. It is widely used in software development for applications in robotics, embedded systems, and simulation tools, making it essential for computer, electronics, and mechanical engineers.

Mode of Conduction of each Module

Theory: 02 Hours
Demo: 01 Hours
Lab Sessions: 03 Hours
Total duration: 06 Hour
Certification exam: 03 Hours

Module 1: Introduction to OOP and Basics

- Overview of Object-Oriented Programming
- Key Principles
- Basic Syntax and Structure
- Functions and Scope

Module 2: Classes and Objects

- Defining Classes & Creating Objects
- Class members
- Access Specifiers
- Constructor and Destructor
- Static Member Variables and Functions
- Friend Functions and Friend Classes
- Inline Functions

Module 3: Advanced Class Features

- Operator Overloading
- Function Overloading
- Overloading Arithmetic and Relational Operators
- Overloading Unary Operators
- Function Templates
- Default Arguments

Module 4: Inheritance and Polymorphism

- Types of Inheritance
- The 'protected' Keyword
- Constructor and Destructor Calls in Inheritance
- Function Overriding and Virtual Functions
- Pure Virtual Functions and Abstract Classes

Module 5: Advanced OOP Concepts

- Function Templates
- Class Templates
- Template Specialization
- Basics of Exception Handling: try, catch, throw
- Custom Exception Classes
- File I/O Basics: Reading and Writing to Files

Coordinators:

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Outcomes

The OOP Skill Lab equips students with essential programming skills, enhancing problem-solving, and promoting efficient software design. Students gain hands-on experience in real-world coding, mastering core OOP concepts like encapsulation and inheritance. This lab prepares them for advanced studies, careers in software development, and learning other languages by building a solid foundation in object-oriented principles.

Acceptance

In order to accept and start the training program, students are required to register with the respective department. Details to be provided by the student to the department include: **Name, USN, UID, Mobile No, Email id**

Terms and Conditions

- Only students who have paid a skill lab fee to the institution are eligible for the training.
- The students must maintain 90% attendance for obtaining the skill lab certificate.
- Students must attend training as per scheduled time