

# C++ Language Syllabus

## C++ Overview

1. C++ Characteristics
2. Object-Oriented Terminology
3. Polymorphism
4. Object-Oriented Paradigm
5. Abstract Data Types
6. I/O Services
7. Standard Template Library
8. Standards Compliance

## Functions and Variables

1. Functions: Declaration and Definition
2. Variables: Definition, Declaration, and Scope
3. Variables: Dynamic Creation and Derived Data
4. Arrays and Strings in C++
5. Qualifiers

## Classes in C++

1. Defining Classes in C++
2. Classes and Encapsulation
3. Member Functions
4. Instantiating and Using Classes
5. Using Constructors

## Multiple Constructors and Initialization Lists

1. Using Destructors to Destroy Instances
2. Friendship

## Operator Overloading

1. Operator Overloading
2. Working with Overloaded Operator Methods

## Initialization and Assignment

1. Initialization vs. Assignment
2. The Copy Constructor
3. Assigning Values
4. Specialized Constructors and Methods
5. Constant and Static Class Members

## Storage Management

1. Memory Allocation

2. Dynamic Allocation: new and delete

## Inheritance

1. Overview of Inheritance
2. Defining Base and Derived Classes
3. Constructor and Destructor Calls

## Polymorphism

1. Overview of Polymorphism