

## *C++ Syllabus*

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### **C++ Overview**

### **C++ Characteristics**

- Object-Oriented Terminology
- Polymorphism
- Object-Oriented Paradigm
- Abstract Data Types
- I/O Services
- Standard Template Library
- Standards Compliance

### **Functions and Variables**

- Functions: Declaration and Definition
- Variables: Definition, Declaration, and Scope
- Variables: Dynamic Creation and Derived Data
- Arrays and Strings in C++
- Qualifiers

### **Classes in C++**

- Defining Classes in C++
- Classes and Encapsulation
- Member Functions
- Instantiating and Using Classes
- Using Constructors
- Multiple Constructors and Initialization Lists
- Using Destructors to Destroy Instances
- Friendship

## **Operator Overloading**

- Operator Overloading
- Working with Overloaded Operator Methods

## **Initialization and Assignment**

- Initialization vs. Assignment
- The Copy Constructor
- Assigning Values
- Specialized Constructors and Methods
- Constant and Static Class Members

## **Storage Management**

- Memory Allocation
- Dynamic Allocation: new and delete

## **Inheritance**

- Overview of Inheritance
- Defining Base and Derived Classes
- Constructor and Destructor Calls

## **Polymorphism**

- Overview of Polymorphism

## **Input and Output in C++ Programs**

- Standard Streams
- Manipulators
- Unformatted Input and Output
- File Input and Output

## Exceptions

- Exceptions
- Inheritance and Exceptions
- Exception Hierarchies
- Inside an Exception Handler

## Templates

- Template Overview
- Customizing a Templated Method
- Standard Template Library Containers

