**Object-Oriented Programming**

##### Week No: 01: Introduction to OOP

Introduction to OOP, Object oriented programming vs. procedural programming, advantages of object-oriented programming.

##### Week No: 02: Introduction to C++ and Java

OOP in Java, basic intro to loop and conditional statements in JAVA, arrays, Array List / Vectors.

##### Week No: 03: Introduction to Classes

Classes: data members and member functions. Member access, constructors and destructors, static data members, scope resolution operator. Memory allocated for objects.

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##### Week No: 05: Operator Overloading

Unary, binary, comparison, Arithmetic assignment operator overloading, Data conversion.

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##### Week No: 07: Inheritance

Inheritance, base and derived classes, casting base class to derived class, public, protected, friendly and private inheritance, overriding member functions.

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##### Week No: 09: Composition

Complex classes composed of objects of other classes.

##### Week No: 10: Polymorphism

Overridden functions, abstract base class, and this pointer.

##### Week No: 11: Object Oriented Design

Class Diagram, Forward Engineering of class diagram to code, Reverse Engineering of code to class diagram.

##### Week No: 12: Exception Handling

Exception handling, Error handling, try/catch/finally blocks, throwing an exception, re-throwing and exception.

##### Week No: 13: File Handling

Streams, Stream objects, Character and binary I/O, Object I/O, readers and writers, I/O with Multiple Objects, Position and offset.

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##### Week No: 15: Templates

Simple Function templates, function templates with multiple arguments, class templates.

#### Recommended Textbooks

1-Robert Lafore, Object-Oriented Programming in C++,Third Edition, The Waite’s Group.

2-Deitel and Deitel, Java How to Program, 9th Edition,Prentice Hall, 2012

Reference Books

1. Greg Perry and Marcus Johnson, Turbo C++ by Example,Prentice Hall
2. Stanley B. Lippman, C++ Primer, 2nd edition.
3. Java Class Libraries Unleashed, SAMS Publishing.