OBJECT ORIENTED PROGRAMMING THROUGH JAVA
(Common to CSE, IT)

Course Code : 15CT1109

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Course Outcomes:

At the end of the course, a student will be able to

CO 1 Apply Object oriented approach to design software.

CO 2 Implement programs using classes and objects.

CO 3 Apply exception handling and multithreading.

CO 4 Design and develop GUI based applications.

CO 5 Integrate event handling in GUI applications and develop networking applications.

UNIT-I   (10 Lectures)

FUNDAMENTALS OF OBJECT-ORIENTED PROGRAMMING:

Introduction, Object-Oriented Paradigm, Basic concepts of Object-Oriented Programming, Benefits of Object-Oriented Programming, Applications of Object-Oriented Programming

THE HISTORY AND EVOLUTION OF JAVA:

Creation of Java, Java's Bytecode, Java buzzwords, evolution of Java. An overview of Java-Simple Java Program. Data types, variables, automatic type conversion, Arrays, operators, expressions, control statements.

UNIT-II   (10 Lectures)

INTRODUCING CLASSES:

Class fundamentals, declaring objects, assigning object reference variables, introducing methods- overloading methods, argument passing, recursion, access control, static keyword, final keyword,

using command line arguments, variable length arguments. Constructors, this keyword, garbage collection, finalize() method.

STRING HANDLING:

String class, String Buffer class, StringBuilder class.

INHERITANCE:

Inheritance basics, using super, creating a multilevel hierarchy, how constructors are called, Method overriding, dynamic method dispatch, using abstract classes, using final with inheritance, the Object class.

UNIT-III   (10 Lectures)

PACKAGES AND INTERFACES:

Packages, access protection, importing packages, interfaces.

Exploring java.lang package: Wrapper classes, Math class.

Exploring java.util package: Vector, Scanner, Date, Calendar, StringTokenizer, Random.

Exploring java.io package: Byte streams, Character streams, File, Random Access File.

EXCEPTION HANDLING:

Exception-handling fundamentals, Exception types, uncaught exceptions, using try and catch, multiple catch clauses, nested try statements, throw, throws, finally, Java's built-in exceptions, creating your exception subclasses, using exceptions.

MULTITHREADING:

Java thread model, Main thread, creating a thread, creating multiple threads, using is Alive() and join(), thread priorities, synchronization, Interthread communication, suspending, resuming and stopping threads, using multithreading.

UNIT-IV   (10 Lectures)

APPLETS:

Applet basics, architecture, skeleton, simple applet display methods, repainting, status window, HTML applet tag, passing parameters to applets.

AWT:

AWT classes, window fundamentals, working with frame windows, creating a frame window in an applet, creating a windowed program, displaying information within a window, working with graphics, working with color, working with fonts, AWT control fundamentals, Labels, using buttons, applying checkboxes, checkboxgroup, choice controls, using lists, scrollbars, textfield, text area, using layout managers, Menu bars and menus, dialog boxes.

UNIT-V   (10 Lectures)

EVENT HANDLING:

Two event handling mechanisms, delegation event model, event classes, sources of events, event listener interfaces, using the delegation event model, adapter classes, inner classes, handling events by extending AWT components.

NETWORKING:

Basics, networking classes and interfaces, InetAddress, TCP/IP,URL.

TEXT BOOKS:

1.   E.Balaguruswamy, *"Programming with Java A Primer"*, 4th Edition, TataMcGraw-Hill, 2009.

2.   Herbert Schildt, *"Java The complete reference"*, 8thEdition, McGrawHill, 2011.

REFERENCES:

1.   Timothy budd, *"An introduction to object-oriented programming"*, 3rd Edition, Pearson Education, 2009.

2.   Y. Daniel Liang, *"Introduction to Java programming"*, 9th Edition, Pearson education, 2012.

3.   Ivor Horton, *"Beginning Java"*, 7th Edition, Wrox Publications, 2011.

4.   Cay.S.Horstmann and Gary Cornell "*Core Java 2, Vol I, Fundamentals"*, 9th Edition, Pearson Education, 2012.

5.   Cay.S.Horstmann and Gary Cornell, "*Core Java 2, Vol II, Fundamentals"*, 9th Edition, Pearson Education, 2012.