

212INT2304	Object Oriented Programming Using Java	L	T	P	X	C
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### Course Objectives:

- To understand the basic Java Programming skills and object oriented programming concepts
- To know the working nature of Inheritances, Packages and Interfaces
- To examine the errors and to find the solution using Exception Handling and threads
- To apply the event handlers in the real time scenarios
- To develop applications using Graphical User Interfaces
- To aggregate the advanced Java skills of Swings
- To develop web applications using Java Applets

### Course Outcomes (COs):

- CO1.** Know the basic knowledge and programming skills of object oriented programming in Java
- CO2.** Apply the Inheritance, package and interface concepts of Java to develop the elevated applications
- CO3.** Apply the concepts of Multithreading and Exception handling to develop efficient and error free codes.
- CO4.** Design event driven GUI and web related applications which mimic the real word scenarios.
- CO5.** Able to develop interactive programs using applets and swings
- CO6.** Propose the use of certain technologies by implementing them in the Java programming language to solve the given problem.
- CO7.** To design and develop the stand-alone applications as a team.

## SYLLABUS

### UNIT I: OOP Basics

JAVA BASICS: Review of Object oriented concepts, History of Java, Java buzzwords, JVM architecture, Data types- Variables, Scope and life time of variables, arrays, operators, control statements, type conversion and casting, simple java program, constructors- methods, Static block, Static Data, Static Method, String and String Buffer Classes, Using Java API Document.

### UNIT II: Inheritance, Packages and Interfaces

Basic concepts, Types of inheritance, Member access rules, Usage of this and Super key word, Method Overloading.- Method overriding, Abstract classes, Dynamic method dispatch, Usage of final keyword. Defining package, Access protection, importing packages; Defining and Implementing interfaces, and Extending interfaces.

### UNIT III: Exception Handling, I/O and Multithreading

Concepts of Exception Handling - Benefits of Exception Handling Exception types, Usage of Try, Catch, Throw, Throws and Finally keywords- Built-in Exceptions, Creating own Exception classes, Input/Output: The I/O Classes and Interfaces, I/O Exceptions, Stream classes, Concepts

of Thread, Thread life cycle- creating threads using Thread class and Runnable interface, Synchronization, Thread priorities, Inter Thread communication

#### **UNIT IV: Event Handling**

**Events:** Event Sources, Event Classes, Event Listeners, Delegation Event Model, Handling Mouse and Keyboard Events, Adapter Classes; **AWT:** The AWT Class Hierarchy, User Interface Components- Labels, Button, Canvas, Scrollbars, Text Components, Check Box, Check Box Groups, Choices, Lists Panels – Scrollpane, Dialogs, Menubar, Graphics, Layout Managers – Flow Layout, Border Layout, Grid Layout and Card Layout, Menu Bars and Menus.

#### **UNIT V: GUI Programming with Swing**

**Swing:** Introduction, Limitations of AWT, MVC Connection, Components and Containers, **Exploring Swing:** JLabel and ImageIcon, JTextField, The Swing Buttons- JButton, JToggleButton, Check Boxes and Radio Buttons, JApplet, JScrollPane, JList, JComboBox, Trees and JTable. **Introducing Swing Menus-** Menu Basics, Overview of JMenuBar, JMenu and JMenuItem, Create a Main Menu.

#### **TEXT BOOK**

1. Herbert Schildt, “The Complete Reference – Java”, Tata McGraw-Hill Education, Eleventh Edition, 2019.
2. Paul J. Deitel, Harvey Deitel, “Java SE8 for Programmers”, Deitel Developer Series, 3<sup>rd</sup> Edition, 2014
3. Y.Daniel Liang, “Introduction to Java programming – comprehensive version”, Tenth Edition, Pearson Ltd 2015.
4. E.Balagurusamy. “Programming with JAVA A primer”, Tata McGraw Hill Publication company, fourth edition, 2010

#### **REFERENCES**

1. Paul Deitel Harvey Deitel, Java - How to Program, Prentice Hall; 9th edition, 2011.
2. Cay Horstmann BIG JAVA, 4th Edition, John Wiley Sons, 2009
3. Nicholas S.Williams, Professional Java for Web Applications, Wrox Press, 2014
4. T. Budd (2009), An Introduction to Object Oriented Programming, Addison Wesley Longman, 2002

Course Coordinator

Module Coordinator

Program coordinator