

CS8392 OBJECT ORIENTED PROGRAMMING

DETAILED SYLLABUS

OBJECTIVES:

- To understand Object Oriented Programming concepts and basic characteristics of Java
- To know the principles of packages, inheritance and interfaces
- To define exceptions and use I/O streams
- To develop a java application with threads and generics classes
- To design and build simple Graphical User Interfaces

UNIT I INTRODUCTION TO OOP AND JAVA FUNDAMENTALS

Object Oriented Programming - Abstraction – objects and classes - Encapsulation- Inheritance - Polymorphism- OOP in Java – Characteristics of Java – The Java Environment - Java Source File -Structure – Compilation. Fundamental Programming Structures in Java – Defining classes in Java – constructors, methods -access specifiers - static members -Comments, Data Types, Variables, Operators, Control Flow, Arrays, Packages - JavaDoc comments.

UNIT II INHERITANCE AND INTERFACES

Inheritance – Super classes- sub classes –Protected members – constructors in sub classes- the Object class – abstract classes and methods- final methods and classes – Interfaces – defining an interface, implementing interface, differences between classes and interfaces and extending interfaces - Object cloning -inner classes, Array Lists - Strings

UNIT III EXCEPTION HANDLING AND I/O

Exceptions - exception hierarchy - throwing and catching exceptions - built in exceptions, creating own exception, Stack Trace Elements. Input / Output Basics – Streams – Byte streams and Character streams – Reading and Writing Console – Reading and Writing Files

UNIT IV MULTITHREADING AND GENERIC PROGRAMMING

Differences between multi-threading and multitasking, thread life cycle, creating threads, synchronizing threads, Inter thread communication, daemon threads, thread groups. Generic Programming – Generic classes – generic methods – Bounded Types – Restrictions and Limitations.

UNIT V EVENT DRIVEN PROGRAMMING

Graphics programming - Frame – Components - working with 2D shapes - Using color, fonts, and images - Basics of event handling - event handlers - adapter classes - actions - mouse events - AWT event hierarchy - Introduction to Swing – layout management - Swing Components – Text Fields, Text Areas – Buttons- Check Boxes – Radio Buttons – Lists-choices- Scrollbars – Windows –Menus – Dialog Boxes.

TEXT BOOKS:

1. Herbert Schildt, —Java The complete referencell, 8th Edition, McGraw Hill Education, 2011.
2. Cay S. Horstmann, Gary cornell, —Core Java Volume –I Fundamentalsll, 9th Edition, Prentice Hall, 2013.

REFERENCES:

1. Paul Deitel, Harvey Deitel, —Java SE 8 for programmersII, 3rd Edition, Pearson, 2015.
2. Steven Holzner, —Java 2 Black bookII, Dreamtech press, 2011.
3. Timothy Budd, —Understanding Object-oriented programming with Javall, Updated Edition, Pearson Education, 2000.