



Computer Science Paper V
Object Oriented Programming using Java-I
[Discipline Specific Course]

Semester: V

Credits: 2

Subject Code: BS52205

Lectures: 36

Course Outcomes:

At the end of this course, the learner will be able to:

- Identify fundamental concepts of Object-Oriented Concepts
- Develop an ability to learn and implement various java programming concept like Interface, File and Exception Handling etc
- Design user interfaces using Swing and AWT classes

Unit 1: Introduction to OOPs and Java

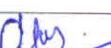
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- **Introduction to Java**
 - Object Oriented Programming Concepts
 - A short history of Java
 - Features OR Buzzwords of Java
 - Java Environment: Simple Java Program
 - Java Tools – jdb, javap, javadoc
 - Types of Comments
 - Data Types, Final Variable
 - Arrays: Declaring 1D, 2D Array
 - Accepting Input (Command Line Arguments, BufferedReader, Scanner)

Unit 2: Objects and Classes

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- **Objects and Classes**
 - Defining your own classes
 - Access Specifiers (public, protected, private, default)
 - Array of Objects
 - Constructors, Overloading Constructors and Use of 'this' keyword
 - static block, static fields and methods
 - Object Class, Methods (equals (), toString (), hashCode (), getClass())
 - String Class, StringBuffer Class, Formatting String data using format() method
 - Creating, Accessing and Using Packages Wrapper Classes
- **Inheritance and Interfaces**
 - Inheritance Basics (extends Keyword) and Types of Inheritance
 - Superclass, Subclass and use of Super Keyword
 - Method Overriding and runtime polymorphism
 - Use of final keyword related to method and class
 - Use of abstract class and abstract methods
 - Defining and Implementing Interfaces

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- Runtime polymorphism using interface
- Concept of Marker and Functional Interfaces

Unit 3: Handling Exceptions and I/O

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- **Exception Handling**
 - Dealing with errors
 - Exception class: Checked and Unchecked Exception
 - Catching Exceptions, Multiple Catch Block, Nested try block
 - Creating User Defined Exception
- **I/O Handling**
 - Introduction to Files and Streams
 - Input-OutputStream :FileInput/OutputStream, BufferedInput/OutputStream, DataInput/OutputStream
 - Reader-Writer :FileReader/Writer, BufferedReader/Writer, InputStreamReader, OutputStreamWriter

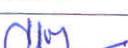
Unit 4: User Interface Designing

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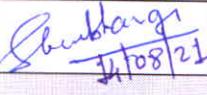
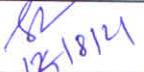
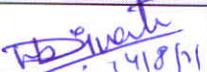
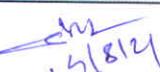
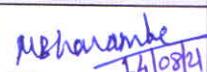
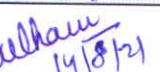
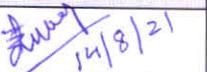
- **AWT and Swing**
 - What is AWT? What is Swing? Difference between AWT and Swing
 - The MVC Architecture
 - Swing Layouts and Layout Managers
 - Containers And Components – JFrame, JButton, JLabel, JText, JTextArea, JCheckBox And JRadioButton, JList, JComboBox, JMenu and related Classes, Dialogs (Message, Confirmation, Input), JFileChooser, JColorChooser
 - Event Handling: Event Sources, Listeners
 - Adapters and Anonymous Inner Class

Recommended Reference Books:

- Cay S. Horstmann, Gary Cornell, *Core Java Volume-I-Fundamentals*, Eighth Edition, Prentice Hall, Sun Microsystems Press
- E. Balagurusamy, *Programming with Java , A primer* ,Forth edition
- Herbert Schildt, *Complete reference Java (5th edition)*
- Steven Horlzner , *Java 2 programming black books*

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