



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

Semester: V	Credits: 2	Subject Code: BS52205	Lectures: 36
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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	
o Concept of Marker and Functional Interfaces	

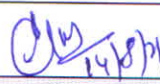
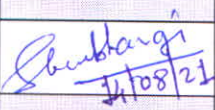
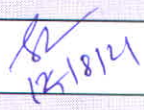
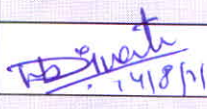
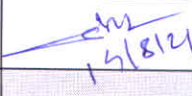
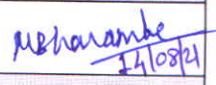
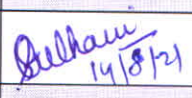
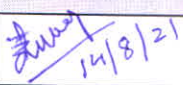
Unit 3: Handling Exceptions and I/O	5
<ul style="list-style-type: none"> ● Exception Handling <ul style="list-style-type: none"> o Dealing with errors o Exception class: Checked and Unchecked Exception o Catching Exceptions, Multiple Catch Block, Nested try block o Creating User Defined Exception ● I/O Handling <ul style="list-style-type: none"> o Introduction to Files and Streams o Input-OutputStream :FileInput/OutputStream, BufferedInput/OutputStream, DataInput/OutputStream o Reader-Writer : FileReader/Writer, BufferedReader/Writer, InputStreamReader, OutputStreamWriter 	

Unit 4: User Interface Designing	10
<ul style="list-style-type: none"> ● AWT and Swing <ul style="list-style-type: none"> o What is AWT? What is Swing? Difference between AWT and Swing o The MVC Architecture o Swing Layouts and Layout Managers o Containers And Components – JFrame, JButton, JLabel, JText, JTextArea, JCheckBox And JRadioButton, JList, JComboBox, JMenu and related Classes, Dialogs (Message, Confirmation, Input), JFileChooser, JColorChooser o Event Handling: Event Sources, Listeners o Adapters and Anonymous Inner Class 	

Recommended Reference Books:
<ul style="list-style-type: none"> ● Cay S. Horstmann, Gary Cornell, <i>Core Java Volume-I-Fundamentals</i>, Eighth Edition, Prentice Hall, Sun Microsystems Press ● E. Balagurusamy, <i>Programming with Java , A primer</i> ,Forth edition ● Herbert Schildt, <i>Complete reference Java (5th edition)</i> ● Steven Horlzner , <i>Java 2 programming black books</i>

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