

Course Code: **WSR004**

Course Title: **JAVA- SE (Core Java)**

Course Duration: **2-Month (60 Classes)**

Theory: **1-2 Hour each class**    **Lab: 2 Hour each class**

Course Fee: **3000/-**

**Introduction:**

The Core Java technologies and application programming interfaces (APIs) are the foundation of the java Platform, Standard Edition (Java SE). They are used in all classes of Java programming, from desktop applications to Java EE applications.

<b>SL#</b>	<b>SUBJECT TITLE</b>	<b>DESCRIPTION</b>	<b>CLASSES</b>
1	Introduction	Programming language Types and Paradigms. Computer Programming Hierarchy. How Computer Architecture Affects a Language? Why Java? Flavors of Java. Java Designing Goal. Role of Java Programmer in Industry. Features of Java Language. JVM –The heart of Java Java’s Magic Byte code	1
2	Fundamentals	<b>The Java Environment:</b> Installing Java. Java Program Development Java Source File Structure Compilation Executions.  <b>Basic Language Elements:</b> Lexical Tokens, Identifiers Keywords, Literals, Comments Primitive Datatypes, Operators Assignments.	3
3	Object Oriented Programming	Class Fundamentals. Object & Object reference. Object Life time & Garbage Collection. Creating and Operating Objects. Constructor & initialization code block. Access Control, Modifiers, methods Nested , Inner Class & Anonymous Classes Abstract Class & Interfaces Defining Methods, Argument Passing Mechanism Method Overloading, Recursion. Dealing with Static Members. Finalize() Method.	5

		Native Method. Use of "this " reference. Use of Modifiers with Classes & Methods. Design of Accessors and Mutator Methods Cloning Objects, shallow and deep cloning Generic Class Types	
4	Lab	Lab	5
5	Classes & Inheritance	Use and Benefits of Inheritance in OOP Types of Inheritance in Java Inheriting Data Members and Methods Role of Constructors in inheritance Overriding Super Class Methods. Use of "super". Polymorphism in inheritance. Type Compatibility and Conversion Implementing interfaces.	3
6	Lab	Lab	2
7	Package	Organizing Classes and Interfaces in Packages. Package as Access Protection Defining Package. CLASSPATH Setting for Packages. Making JAR Files for Library Packages Import and Static Import Naming Convention For Packages	2
8	Lab	Lab	1
9	Exception Handling	The Idea behind Exception Exceptions & Errors Types of Exception Control Flow In Exceptions JVM reaction to Exceptions Use of try, catch, finally, throw, throws in Exception Handling. In-built and User Defined Exceptions Checked and Un-Checked Exceptions	3
10	Lab	Lab	2
11	Array & String	Defining an Array Initializing & Accessing Array Multi –Dimensional Array Operation on String Mutable & Immutable String Using Collection Bases Loop for String Tokenizing a String Creating Strings using StringBuffer	2
12	Lab	Lab	1
13	Thread	Understanding Threads Needs of Multi-Threaded Programming. Thread Life-Cycle Thread Priorities Synchronizing Threads	2

		Inter Communication of Threads Critical Factor in Thread –DeadLock	
14	Lab	Lab	1
15	Applet	Applet & Application Applet Architecture. Parameters to Applet Embedding Applets in Web page. Applet Security Policies	1
16	Lab	Lab	1
17	Java Utilities-I	Utility Methods for Arrays Observable and Observer Objects Date & Times Using Scanner Regular Expression	1
18	Lab	Lab	1
19	I/O operation in JAVA	Streams and the new I/O Capabilities Understanding Streams The Classes for Input and Output The Standard Streams Working with File Object File I/O Basics Reading and Writing to Files Buffer and Buffer Management Read/Write Operations with File Channel Serializing Objects	2
20	Lab	Lab	1
21	GUI-Programming-I	Basics of Components Using Containers Layout Managers AWT Componets Adding a Menu to Window Extending GUI Features Using Swing Components	3
22	Lab	Lab	2
23	Java Utilities-II	Collections of Objects Collection Types Sets Sequence Map Understanding Hashing Use of ArrayList & Vector	1
24	Lab	Lab	1
25	Event handling	Event-Driven Programming in Java Event- Handling Process Event-Handling Mechanism The Delegation Model of Event Handling Event Classes Event Sources	2

		Event Listeners Adapter Classes as Helper Classes in Event Handling Anonymous Inner classes a Short –cut to Event Handling Avoiding Deadlocks in GUI Code Event Types & Classes	
26	Lab	Lab	1
	Network Programming & Swing	Networking Basics Client-Server Architecture Socket Overview Networking Classes and Interfaces Network Protocols Developing Networking Applications in Java Swing Components & Implementation	2
27	Lab	Lab	1
28	Database Programming using JDBC	Introduction to JDBC JDBC Drivers & Architecture CURD operation Using JDBC Connecting to non-conventional Databases	2
29	Lab	Lab	5
		Total	60