Java Programming (3-0-3)
(Semester V)

Evaluation:

	Theory	Practical	Total
Sessional	30	20	50
Final	50	-	50
Total	80	20	100

Course Objectives:

1. To enable the students to understand the core principles of the Java Language.
2. To use visual tools to produce well designed, effective applications and applets.
3. To enable students to learn to produce well designed, effective standalone applications.
4. To enable students to do socket programming, database handling using JDBC

Unit	Topic	Hours
1	**Introduction to Core Java:** History of java, platform independency, Introduction to JVM architecture, Object Oriented features with respect to Java, Class and Object, Operators, data types, arrays, Inheritance, Interfaces, Packages and Exception Handling	7
2	**Applet As Java Applications:** Introduction to application, Lifecycle of Applets, Applets and its methods, Applet Vs Applications	4
3	**Multithreading:** Introduction to thread, Multithreading concepts, Thread Life cycle, Creating multithreaded application, Thread priorities and Thread synchronization	4
4	**Java Input Output:** Java IO package, Byte/Character Stream, Buffered reader / writer, File reader / writer, Print writer and File Sequential / Random	5
5	**Java GUI Components:** Containers, Frames and Panels, Layout manager, Introduction to Netbeans IDE, Event delegation Model, Event source and handler, Event categories, Listeners, interfaces, adaptor classes, Swing Libraries, Model view Controller design pattern Different layout and All swing components	10
6	**Networking with Java:** Networking basics, Sockets, port, Proxy servers, Internet addressing URL, java.net – Networking classes and Interfaces, Implementing TCP/IP based Server and Client, Datagrams–Datagram packet, Datagram server and client, connections	6

7	**JDBC:** Java database connectivity, Types of JDBC drivers, Writing first JDBC applications, Types of statement objects (Statement, PreparedStatement and CallableStatement), Types of resultset, ResultSetMetadata, CRUD operations in database, JDBC and AWT and Connection pooling	6
8	**Generics:** Introduction to generics, Generics class with parameters, General form of a generic class, Creating a generic method, constructors, interfaces and Polymorphism in generics	6
	Total Hours	**48**

Laboratory

1. Demonstrate uses of arrays, operators.
2. Write a java code to demonstrate inheritance, multilevel inheritance, multiple inheritance using interfaces, creation and use of own packages.
3. Demonstrate exception handling (try-catch-finally, throws etc).
4. Create an Applet and embedded it in HTML page.
5. Demonstrate multi-threading
6. Demonstrate sequential and random reading and writing of files
7. Design AWT/Swing form with all swing controls.
8. Demonstrate TCP and UDP based client server connection.
9. Demonstrate CRUD operations of database with help of AWT/Swing controls
10. Demonstrate use of generic method, constructors and interfaces

Text Book

1. Herbert Schildt, Java The Complete Reference, Tata McGraw Hill Edition

Reference Books

1. Kogent, *Java 6 Programming* Black Book, Dreamtech Publication
2. Cay S Horstmann, Fary *Cornell Core Java 2 Volume* – I, Sun Microsystem press
3. Cay S Horstmann, Fary *Cornell Core Java 2 Volume* – II, Sun Microsystem press
4. E.Balguruswami *Programming with Java, A Primer*, Tata McGraw Hill Edition