

Semester –IV**Programming in JAVA**

BTAIPE405D	Programming in JAVA	PEC1	3L-1T-0P	4 Credits
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Teaching Scheme	Examination Scheme
Lecture: 3 hrs./week Tutorial : 1 hr./week	Continuous Assessment : 20 Marks Mid Semester Exam: 20 Marks End Semester Exam: 60 Marks (Duration 03 hrs.)

Pre-Requisites: Basics of programming languages and Concepts of Object Oriented Programming languages.

Course Objectives:

After completion of the course, the students will be able to:

1. Apply object oriented features to real time entities.
2. Handle exceptions & implement multithreaded programs.
3. Implement database programming.
4. Design & implement GUI with event handling
5. Develop I/O & networking programs.

Course Outcomes:

On completion of the course, students will be able to:

CO1	To understand basics of JAVA
CO2	To use Packages & interfaces
CO3	To apply Exception Handling & Multithreaded Programming
CO4	To acquire Java Database Connectivity
CO5	To recognize Applet, Event Handling and AWT

Course Contents:**Unit 1: Introduction, Packages & interfaces****[8 Hours]**

Review of Object oriented concepts, Evolution of Java, Comparison of Java with other programming languages, Java features, Java and World Wide Web, Java Run Time Environment. JVM architecture. Overview of Java Language, Simple Java Program, Java Program Structure. Installing and Configuring Java. Java Tokens, Java Statements, Constants, variables, data types. Declaration of variables, Giving values to variables, Scope of variables, arrays, Symbolic constants, Typecasting, Getting values of variables, Standard default values, Operators, Expressions, Type conversion in expressions, Operator precedence and associativity, Mathematical functions, Control statements- Decision making & looping.

Unit 2: Exception Handling & Multithreaded Programming**[07 Hours]**

Exception handling fundamentals, Exception Types, Using try-catch, Multiple try-catch clauses, Nested try statements, throw, throws, finally, Built-in Exceptions, creating your own exception subclasses, The Java Thread Model, The Main Thread, Creating a Thread, Creating Multiple Threads, Using isAlive() and join(), Thread Priorities, synchronization, Suspending, Resuming, and Stopping Threads

Unit 3: Applet, Event Handling and AWT**[07 Hours]**

Applet: Applet Basics, An Applet Skeleton, Simple Applet Display Methods, Using the Status, Window, The HTML APPLET Tag, Passing Parameters to Applets, Event Handling: The Delegation Event Model, Event Classes, Sources of Events, Event, Listener Interfaces, Handling Mouse and Keyboard Events, Adapter Classes, Introduction to AWT, AWT classes, Window, Creating a Frame Window in an Applet, Working with Graphics, swing.

Unit 4: Input /Output & Networking**[07 Hours]**

Input /Output: I/O Basics, Reading Console Input, Writing Console Output, The PrintWriter Class, Reading and Writing Files, The Stream Classes, The Byte Streams, The Character Streams, Object Serialization & deserialization, Networking: Networking Basics, The Networking Classes and Interfaces, TCP/IP Client, Sockets, TCP/IP Server Sockets, Datagrams

Unit 5: Java Database Connectivity**[07 Hours]**

Introduction, Types of JDBC Drivers, Driver interface & DriverManager class, Connection Interface, Statement Interface, PreparedStatement, ResultSet, JDBC Program for executing Statements & processing ResultSet, Using PreparedStatement.

Note: Hands-on practice of Programming in Java should cover under Tutorial slots.

Text / Reference Books:

1. Herbert Schildt, The Complete Reference- Java2, (Seventh Edition), Tata Mc Graw Hill.
2. Steven Holzner, Java 2 Black Book, Dream Tech Press.
3. Deitel & Deitel, Java: How to Program, PHI.
4. Bert Bates, Kathy Sierra, Head First Java, O'Reilly Media, Inc.
5. E Balagurusamy, Programming with Java, Tata Mc Graw Hill.