

B.Sc. Part – III Computer Science (Optional) (Semester – VI)

Course Code: DSE-F21 Computer Science Paper –XIII

Course Title: Advanced Java

Total Contact Hours: 36 Hrs (45 Lectures of 48 Min.)

Teaching Scheme: Theory – 03 Lect. / Week

Credits: 02

Total Marks: 50

Course Outcomes:

After successful completion of this course, students will able to:

- 1) develop distributed business applications, develop web pages using advanced server-side programming through servlets and Java server pages.
- 2) demonstrate approaches for performance and effective coding.
- 3) learn database programming using Java.
- 4) study web development concept using Servlet and JSP.

Unit – 1: Java Swing and JDBC

(18 Hrs.)

- (A) **Java Swing:** Overview of Java Swing and its advantages, Java Swing MVC architecture, Component of swing: JFrame, JComponent, JLabel, JTextfields, JCheckbox, JPanel, JRadiobuttons, JTabbed Pane, JButton, JTree, JTable, JMenu, Difference between AWT and Swing, Event handling in Swing.
- (B) **JDBC:** Introduction Java Data Base Connectivity (JDBC), JDBC Architecture and Components, Establishing a connection to a database using DriverManager, Handling database connections: opening and closing connections, Overview of JDBC statements: Statement, PreparedStatement, Executing SQL queries and updates, Retrieving and processing result sets, Types of ResultSet.

Unit – 2: Servlet and Java Server Pages (JSP)

(18 Hrs.)

- (A) **Servlet:** Introduction to Servlet and Servlet Class Hierarchy, Life-Cycle of Servlet, Servlet API, Directory structure of Servlet Application, ServletConfig and ServletContext, Handling HTML form data – get and post method, Session tracking –URL rewriting, Cookies, and HttpSession.
- (B) **Java Server Pages (JSP):** Introduction to JSP, Life cycle of JSP, JSP v/s Servlet, Components of JSP: Directives, Tags, Scripting elements – Declarations, Expressions, Scriptlets, Comments, Implicit objects of JSP, Connecting to database.

Reference Books –

1. Programming with Java A Primer, E. Balaguruswamy, Tata McGraw Hill Companies.
2. Java : The Complete Reference, Herbert Schildt, Tata McGraw-Hill
3. Java Programming- Rajendra Salokhe (Aruta Publication)
4. THE Java™ Programming Language, Fourth Edition By Ken Arnold, James Gosling, David Holmes
5. Introduction to Java programming, By Y. Daniel Liang, Pearson Publication.