Programming in Java - II

Semester VI   **Subject Code: BS61705**   **Lectures: 60**

Objectives:

The syllabus aims in equipping students with,
- Problem solving abilities using computers
- Ability to build the necessary skill set and developing computer based solutions for real life problems
- Necessary knowledge base for JDBC programming
- To design User Interface using Swing and AWT

Unit 1: Database Programming   12

- Introduction to JDBC: Architecture (2-tier, 3-tier)
- JDBC Drivers
- Connectivity with PostgreSQL: basic steps
- JDBC statement: Statement, PreparedStatement, CallableStatement
- JDBC ResultSet and types
- JDBC Metadata – ResultSetMetaData, DatabaseMetaData
- Transactions: commit(), rollback(), SavePoint()

Unit 2: Multithreading   09

- What are threads?
- Life cycle of thread
- Creating and using threads using Thread class and Runnable interface
- Thread priorities
- Running multiple threads, ThreadGroup class
- Daemon thread
- Synchronization and inter-thread communication(race condition using thread synchronization)

Unit 3: Servlets   13

- Introduction to Servlet and Servlet types
- Lifecycle of servlet
- Handing HTTPRequest and HTTPResponse
- HttpServlet:
  - Reading form data from servlet

> Servlet - Database communication
- Session tracking –User Authorization, URL Rewriting, Hidden Form fields, Cookies and HttpSession.
- Simple first JSP program
- Life cycle of JSP
- Implicit Objects
- Scripting elements –Declarations, Expressions, Scriplets, Comments
- JSP Directives – Page Directive, include directive
- Mixing Scriplets and HTML
- Example of forwarding contents from database to servlet, servlet to JSP and displaying it using JSP scriplet tag

Unit 4: Java Server Pages (JSP)   13

- Introduction to JSP
- Life cycle of JSP
- Implicit Objects
- Scripting elements –Declarations, Expressions, Scriplets, Comments
- JSP Directives – Page Directive, include directive
- Mixing Scriplets and HTML

Unit 5: Networking   05

- Networking basics –Protocol, Addressing, DNS, URL, Socket, Port
- The java.net package-InetAddress, URL, URLConnection class, SocketServer and Socket class
- Creating a Socket to a remote host on a port (creating TCP client and server)
- Simple Socket Program Example

*Contact hours – 12 hours

Reference Books:

1. Herbert Schildt, *Complete reference Java* (5th edition).
2. Steven Horlzner, *Java 2 Programming Black Book*.
3. E balgurusamy, *Programming with java*, a Primer, 4th edition.
4. Cay S Horstmann,Gary Cornell, *Core Java Volume I- Fundamentals*, 8th edition, , Prentice Hall, Sun MicroSystem Press .
5. Cay S Horstmann,Gary Cornell, *Core Java Volume II- Advance Features*, 8th edition, , Prentice Hall, Sun MicroSystem Press.