
CS – 25 Advanced Java Programming (J2EE)

Unit : 1

- Introduction to J2EE
- Enterprise Architecture Styles:
 - Two-Tier Architecture
 - Three-Tier Architecture
 - N-Tier Architecture
- Enterprise Architecture
- The J2EE Platform
- Introduction to J2EE APIs (Servlet, JSP, EJB, JMS, JavaMail, JSF, JNDI)
- Introduction to Containers
- Tomcat as a Web Container
- Introduction of JDBC
- JDBC Architecture
- Data types in JDBC
- Processing Queries
- Database Exception Handling
- Discuss types of drivers
- JDBC Introduction and Need for JDBC
- JDBC Architecture
- Types of JDBC Drivers
- JDBC API for Database Connectivity (java.sql package)
- Statement, PreparedStatement
- CallableStatement
- ResultSetMetaData
- DatabaseMetaData
- Other JDBC APIs
- Connecting with Databases (MySQL, Access, Oracle)

Unit : 2 – RMI Servlet

- RMI overview
- RMI architecture
- Stub and Skeleton
- Developing and Executing RMI application
- Servlet Introduction
- Architecture of a Servlet
- Servlet API (javax.servlet and javax.servlet.http)
- Servlet Life Cycle
- Developing and Deploying Servlets
- Handling Servlet Requests and Responses
- Reading Initialization Parameters
- Session Tracking Approaches (URL Rewriting, Hidden Form Fields, Cookies, Session API)
- Servlet Collaboration
- Servlet with JDBC

Unit : 3 – JSP, Java Beans

- Introduction to JSP and JSP Basics
- JSP vs. Servlet
- JSP Architecture
- Life cycle of JSP
- JSP Elements: Directive Elements, Scripting Elements, Action Elements
 - Directives Elements (page, include, taglib)
 - Scripting Elements (Declaration, scriptlet, expression)
 - Action Elements (JSP:param, JSP:include, JSP:Forward, JSP:plugin)
- JSP Implicit Objects
- JSP Scope
- Including and Forwarding from JSP Pages
- include Action
- forward Action
- Working with Session & Cookie in JSP
- Error Handling and Exception Handling with JSP
- JDBC with JSP
- JavaBean Properties
- JavaBean Methods
- Common JavaBean packaging

Unit : 4 – MVC Architecture, EJB, Hibernate

- Introduction to MVC
- Implementation of MVC Architecture
- Introduction
- Types of EJB, Benefits of EJB, Restriction on EJB
- Session Beans
- Entity Beans
- Message-driven beans
- Timer service
- Introduction to Hibernate
- Need for hibernate
- Features of hibernate
- Disadvantages of Hibernate
- Exploring Hibernate Architecture
- Downloading and Configuring and necessary files to Hibernate in Eclipse
- Jars files of hibernate.
- Hibernate Configuration file
- Hibernate Mapping file
- Basic Example of Hibernate
- Annotation
- Hibernate Inheritance
- Inheritance Annotations
- Hibernate Sessions

Unit : 5 - Spring, Struts

- Introduction of Spring Framework
- Spring Architecture
- Spring Framework definition
- Spring & MVC
- Spring Context definition
- Inversion of Control (IoC) in Spring
- Aspect Oriented programming in Spring (AOP)
- Understanding Struts Framework
- Comparison with MVC using RequestDispatcher and the EL
- Struts Flow of Control
- Processing Requests with Action Objects
- Handling Request Parameters with FormBeans
- Prepopulating and Redisplaying Input Forms
- Using Properties Files

	Class Room	Seminar	Expert Talk	Test	Total
No. Of Lecture	60	05	05	05	75

Reference Books :

- 1) The Complete Reference Java 2 - Herbert Schildt and Patrick Naughton
- 2) Java Server Programming For Professionals, Ivan Bayross, Sharanam Shah – Shroff Publication
- 3) Advanced Java Programming [ISBN: 978 - 93 - 81786 - 91 – 8] by Bharat & Company
- 4) Developing Java Servlets – Techmedia
- 5) JSP Beginner's Guide – Tata McGraw Hill by Gary Bolling, Bharathi Nataragan
- 6) Spring and Hibernate, K. Santosh Kumar, - Tata McGraw-Hill
- 7) Hibernate Made Easy: Simplified Data Persistence with Hibernate and JPA (Java Persistence API) Annotations by Cameron Wallace McKenzie, Kerri Sheehan
- 8) Spring Framework: A Step by Step Approach for Learning Spring Framework - CreateSpace Independent Publishing Platform
- 9) Beginning Hibernate Second Edition By Jeff Linwood, Dave Minto – APress

Reference Website

- 1) <https://www.w3schools.com/java>
- 2) <https://www.javatpoint.com/java-tutorial>
- 3) <https://www.tutorialspoint.com/java>
- 4) <https://www.guru99.com/java-tutorial.html>
- 5) <https://beginnersbook.com/java-tutorial-for-beginners-with-examples>