



SILVER OAK UNIVERSITY

College of Technology (01)

Bachelor of Technology in CE/CE_CC/CSE_CS/IT Engineering

Subject Name: Advanced Java

Subject Code: 1010043339

Semester: 6th

Prerequisite: Java Programming

Objective:

1. To store the data database connectivity and database JDBC component is needed. Networking components are needed to transfer data over network. Model-View-Controller (MVC) architecture gives flexibility and makes the web applications loosely coupled.
2. Web application based on Java uses Servlet, JSP, and JSF.

Teaching and Examination Scheme:

Teaching Scheme					Evaluation Scheme				Total Marks
L	T	P	Contact Hours	Credit	Theory		Practical		
					CIE (TH)	ESE (TH)	CIE (PR)	ESE (PR)	
4	0	2	6	5	40	60	20	30	150

Content:

Unit No.	Contents	Teaching Hours	Weightage %
1	Java Networking Network Basics and Socket overview, TCP/IP client sockets, URL, TCP/IP server sockets, Datagrams, java.net package Socket, ServerSocket, InetAddress, URL, URLConnection , RMI architecture, RMI registry, Distributed application with RMI,	08	10
2	JDBC Programming The JDBC Connectivity Model, Database Programming: Connecting to the Database, Creating a SQL Query, Getting the Results, Updating Database Data, Error Checking and the SQLException Class, The SQLWarning Class, The Statement Interface, PreparedStatement, CallableStatement The ResultSet Interface, Updatable Result Sets, JDBC Types, Executing SQL Queries, ResultSetMetaData, Executing SQL Updates, Transaction Management.	08	10
3	Servlet API and Overview Servlet Model: Overview of Servlet, Servlet Life Cycle, HTTP Methods Structure and Deployment descriptor		

	ServletContext and ServletConfig interface, Attributes in Servlet, Request Dispatcher interface The Filter API: Filter, FilterChain, Filter Config Cookies and Session Management: Understanding state and session, Understanding Session Timeout and Session Tracking, URL Rewriting	10	25
4	Java Server Pages JSP Overview: The Problem with Servlets, Life Cycle of JSP Page, JSP Processing, JSP Application Design with MVC, Setting Up the JSP Environment, JSP Directives, JSP Action, JSP Implicit Objects, JSP Form Processing, JSP Session and Cookies Handling, JSP Session Tracking, JSP Database Access, JSP Standard Tag Libraries, JSP Custom Tag, JSP Expression Language, JSP Exception Handling, JSP XML Processing.	10	25
5	Java Server Faces 2.0 Introduction to JSF, JSF request processing Life cycle, JSF Expression Language, JSF Standard Component, JSF Facelets Tag, JSF Converter Tag, JSF Validation Tag, JSF Event Handling and Database Access, JSF Libraries: PrimeFaces	04	10
6	Hibernate 4.0 Overview of Hibernate, Hibernate Architecture, Hibernate Mapping Types, Hibernate O/R Mapping, Hibernate Annotation, Hibernate Query Language	08	10
7	Java Web Frameworks: Spring MVC Overview of Spring, Spring Architecture, bean life cycle, XML Configuration on Spring, Aspect – oriented Spring, Managing Database, Managing Transaction	08	10

Course Outcome:

Sr. No.	CO statement	Unit No
CO-1	Implement Networking and Data base connectivity in Java for given application.	1,2
CO-2	Implement webpage with dynamic content and server side web application using Servlet and JSP.	3,4
CO-3	Use web application framework JSF to build user interfaces.	5
CO-4	Use Object Relation Mapping using Hibernate to build database dependent applications	6
CO-5	Apply Model-View-Controller architecture to build complex client-server applications.	7

Teaching & Learning Methodology: -

The various methods or tools follows by the faculties to teach the above subject are:

1. The course includes a laboratory, where students have an opportunity to build an appreciation for the concepts being taught in lectures.
2. Lectures with live practical example using Projector and Computer.
3. Experiments shall be performed in the laboratory related to course contents.

List of Practical:

1. Implement TCP Server for transferring files using Socket and ServerSocket.
2. Write RMI application where client supplies two numbers and server response by summing it. Provide your custom security policy for this application.
3. Implement student registration form with enrolment number, first name, last name, semester, contact number. Store the details in database(JDBC). Also implement search, delete and modify facility for student records.
4. Write a Servlet program to print system date and time.
5. Create Servlet file and study web descriptor file.
6. Create login form and perform state management using Cookies, HttpSession and URL Rewriting.
7. Create database of student subject-wise data and retrieve all data using JSP and generate xml structure along with DTD and XML Schema definition
8. Design a web page that takes the Username from user and if it is a valid username prints "Welcome Username". Use JSF to implement.
9. Write Hibernate application to store customer records and retrieve the customer record including name, contact number, address.
10. Write an application to keep record and retrieve record of student. The record includes student id, enrolment number, semester, SPI. Use MVC architecture.

Books Recommended:

1. Black Book "Java server programming" J2EE, 1st ed., Dream Tech Publishers, 2008. 3. Kathy walrath"
2. Complete Reference J2EE by James Keogh mcgraw publication
3. Professional Java Server Programming by Subrahmanyam Allamaraju, Cedric Buest Wiley Publication
4. Core Java, Volume II: Advanced Features by Cay Horstmann and Gary Cornell Pearson Publication
5. Java Persistence with Hibernate by Christian Bauer, Gavin King
6. Spring in Action 3rd edition , Craig walls, Manning Publication
7. Java Server Faces in Action, Kito D. Mann, Manning Publication
8. JDBC™ API Tutorial and Reference, Third Edition, Maydene Fisher, Jon Ellis, Jonathan Bruce, Addison Wesley

List of Open Source Software/learning website:

- <https://www.tutorialspoint.com/>
- <https://www.geeksforgeeks.org/introduction-java-servlets/>
- <http://silveroakuni.ac.in/video-lecture>
- <https://nptel.ac.in/>
- <https://nptel.ac.in/courses/112/105/112105124/>