

Kadi Sarva Vishwavidyalaya, Gandhinagar

MCA Semester II

MCA-21: Advanced Object Oriented Technology

Rationale:

The objective of this course to teach the concept of J2EE so they can easily development the application using Servlet, JSP , JDBC and other concept. Instruction shall be in a laboratory setting with continuous hands-on implementation of concepts and emphasis on developing application in AJP.

Prerequisite: Basic knowledge of Object Oriented Programming Language (Core Java)

Learning Outcomes:

Students will be able to develop the database driven enterprise application using the subjects concepts.

Teaching and Evaluation Scheme: The objective of evaluation is to evaluate the students throughout the semester for better performance. Students are evaluated on the basis of continuous evaluation system both in theory and practical classes based on various parameters like term work, class participation, practical and theory assignments, presentation, class test, Regular Attendance, etc.

Sub Total Credit	Teaching scheme		Examination scheme				
	(per week)		MID	CEC	External		Total Marks
	Th	Pr	Th	Th	Th.	Pr.	
5	3	4	25	25	50	50	150

Course Contents:**UNIT 1 :SERVLETS****[20%]**

Building basic servlets, Understanding the Servlet life cycle, Reading form parameters, Using HTTP request headers, Manipulating HTTP status codes and response headers, Redirecting requests, Generating custom JPEG images from servlets, Handling Cookies, Tracking sessions, Difference between browser and server sessions, Advanced features of Servlet.

UNIT 2 JDBC**[20%]**

Overview of JDBC , Understanding of ODBC , JDBC driver types, JDBC-ODBC bridge , Driver Manager , Driver , Connection , Statement , ResultSet, Accessing databases with JDBC, Configuring MS Access, MYSQL and Oracle9i , Creating and Processing HTML Forms

UNIT 3 JSP FUNDAMENTALS

[20 %]

Overview of JSP, Invoking Java code from JSP pages, Classic JSP scripting elements, Predefined JSP variables, Code structure with the page directive, Controlling multithreading behavior , Pages at request time and compile time , Including Files and Applets in JSP pages

UNIT 4 MVC ARCHITECTURE AND JSTL

[20%]

Understanding the benefits of beans, Creating beans, Installing bean classes on server, Accessing bean properties, Setting implicit and explicit bean properties, Sharing beans among multiple servlets and JSP pages, Understanding the benefits of MVC, Request Dispatcher to implement MVC, Handling relative URLs, Different display options, Comparing Data Sharing strategies, Collections and Implicit Objects Using EL, Using EL Operators. The Application Events Framework, Tag Library – Basics; Using JSTL – c:out, c:forEach, c:forTokens, c:if, c:choose, c:set, c:remove, c:import, c:url, c:param, c:redirect and c:catch Tags

UNIT 5 SPRING AND ORM

[20%]

What is spring? Spring architecture, dependency injection , Aspect oriented programming, Spring Boot Framework features, spring boot configuration and sample project, SB Annotation, SB properties , Spring Boot by creating a REST Web App, Introduction to hibernate and JPA, Database with SB using JPA

Text Books:

1. Marty Hall, Larry Brown, “Core Servlets and JavaServer Pages Volume – 1”, Pearson
2. Marty Hall, Larry Brown, “Core Servlets and JavaServer Pages Volume – 2”, Pearson
3. Craig Walls “Spring Boot in Action” manning publication

Chapter & Topics –

Book 2:-

Unit 4: 7, 9

Book 1:-

Unit 1: 2, 3,4,5,6,7,8,9

Unit 2: 18,

Unit 3: 10,11,12,13

Unit 4: 14, 15

Reference Book:

1. Java Servlet & JSP CookBook , Bruce W. Perry , O'Reilly.
2. J2EE: the complete reference , James Edward Keogh , McGraw-Hill
3. Java database programming bible, John O'Donahue, Wiley
4. Java How To Program- Eighth Edition, Paul Deitel & Harvey Deitel, PHI Publication

Note: Practicals Can be performed using any of IDE like Eclipse or NetBeans.

Experiment List:

UNIT-1:

- Develop interest calculation application in which user will provide all information in HTMLform and that will be processed by servlet and response will be generated back to the user.
- Develop an application to demonstrate how the client (browser) can remember the last time it visited a page and displays the duration of time since its last visit. (Hint: use Cookie).
- Demonstrate the use of request and response headers .

UNIT-2:

- Develop a program to perform the database driven operation like insert, Delete, Update and select. To perform the above operations create one table named Employee.
 - Field Name Field Type
 - EmpId Integer
 - Empname Varchar
 - Emp_desig Varchar
 - Emp_J_Date Varchar
 - Emp_Salary Numeric
- Develop a Java application to perform the database driven operation like insert, Delete, Update and selection using PreparedStatement. To perform the above operations use the table from above exercise.
- Write a Java application to invoke a stored procedure using a CallableStatement. For this a
 - stored procedure called incrementSalary may be developed to increase all the employees salary
 - by a percentage specified in the parameter.

UNIT-3:

- Write a simple JSP page to display a simple message (It may be a simple html page).
- Write a JSP page, which uses the include directive to show its header and footer.
- Develop an application to write a "page-composite" JSP that includes other pages or passes control to another page. (Hint: Use <jsp:include> or <jsp:forward>).
- Reduce the amount of Java coding in your JSP using a JavaBean component. (Hint: Use <jsp:useBean> with the name of your bean).
- Write a JSP Page to use JSP's Page directives & JSP scripting.
- Write a JSP Page to which uses Session Tracking for online shopping.

UNIT-4:

- Write a JSP page which uses tags available from the standard tag library JSTL. Write a Servlet which uses the concept of Request forwarding & including external source in the current servlet context.
- Develop a JSP Page to display the personal information and result information of the student in two different tabular formats.
- Develop a JSP Page to perform database driven operations like insert, Delete, Update and selection with table named Student having fields like StudId, Name, Address, result.

UNIT-5:

- Create web application using spring boot
- Demonstrate the use of REST service using SB.