FACULTY OF COMPUTER SCIENCE
Master of Computer Application (Sem-IV)
In Effect from Academic Year 2017-18

Subject Code : 1CS2010404	Subject Title: ADVANCE JAVA PROGRAMMING
Pre-requisite :	Knowledge of core Java Programming

Course Objective:

The objectives of the course are to:

- Develop proficiency in designing web pages using HTML & Javascript.
- Understand the concepts of Database Programming using JDBC.
- Get a better understanding of developing web based applications using Servlets & JSP.

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)				
				Theory		Practical		
Lecture	Tutorial	Practical	Credit	University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	Total
4	-	3	7	60	40	30	20	150

Subject Contents			
Sr. No	Topic	Total Hours	Weight (%)
1	**JDBC & RMI:** **JDBC:** Accessing Databases with JDBC, Loading JDBC Driver, Establishing Connection, Creating Statements, Executing SQL and Processing Results of a Query, Using Prepared Statement, Using Callable Statement, Using Database Transactions **RMI:** The RMI Architecture, RMI Exceptions, Developing Applications With RMI, Parameter Passing in RMI	10	20
2	**HTML & Java Script :** **HTML**: Introduction, Basic structure and tags of HTML **Java Script:** Overview of Java Script, Primitives, Date and Time, Operations and Expressions, Screen Output and Keyboard Input, Control Statement, Object Creation and Modification, Arrays, Functions, Constructors	10	20
3	**Basics of Sevlets, Handling Client Request, Server Response, Request and Response Headers & Basics of Session Management:** **Servlets:** Servlet Basics, Basic Servlet structure, Servlets Generating text/html content, Packaging Servlets, The servlet life-cycle. **Client Request & Request Headers:** Handling Client Request Form Data, Reading Form Data from Servlets, Handling Client Request, Reading Request Headers, Understanding HTTP/1.1 Request Headers, Changing the page according to how the user got there. **Server Response & Response Headers:** Generating the Server Response, HTTP Status Codes, Specifying Status Codes, HTTP / 1.1 Status Codes, Using Redirections, HTTP Response Headers, Setting Response Headers from Servlets, Understanding HTTP / 1.1 Response Headers, Using Servlets to Generate JPEG Images **Session Management:** Benefits of Cookies, Problem with Cookies, Deleting Cookies, Sending and Receiving Cookies, Using Cookie Attributes, Differentiating Session Cookies from Persistent Cookies, Using Cookies to Remember User Preferences, Session Tracking, Need for Session Tracking, Session Tracking basics ,Session Tracking API, Encoding URLs Sent to the Client.	12	25

4	**JSP & JSP Expression Language (EL):** **JSP:** JSP Basics, JSP Directives, Using JSP Scripting Elements, Using JSP Standard Action, JSP implicit objects/Predefined Variables and their scope **JSP Expression Language(EL):** JSP Expression Language, Accessing Scoped Variables, Bean Properties, Collections and Implicit Objects Using EL, Using EL Operators	11	25
5	**MVC Architecture & web.xml:** Understanding the need for MVC, Implementing MVC with Request Dispatcher, Understanding Data Sharing Between Servlets and JSP. **Web Application Structure & Deployment Configuration(web.xml)**	5	10

Course Outcome:

At the end of this course, the student would be able

- To create Web Pages using HTML and JavaScript
- To create Web applications using Servlets and JSP, following MVC architecture for developing web applications
- To fetch data from a database server and use in a web application.
- To use EL in JSP page
- To make RMI based application.

List of   References:

1. Ivan Bayross, "Web Enabled Commercial Application Development Using HTML, DHTML
2. Marty Hall, Larry Brown, "Core Servlets and JavaServer Pages Volume – 1", Pearson Education, 2nd Edition. (2004)
3. Subrahmanyam Allamaraju, "Professional Java Server Programming J2EE 1.3 Edition", Apress (2007).
4. Marty Hall, Larry Brown, Yaakov Chaikin, "Core Servlets and Java Server Pages Volume – 2", Pearson Education, 2nd ed.(2004)

List of Experiments:

Note: The experiment list provided beneath is for reference only. The course teacher may Change/formulate it as per his/her methodology and requirement.

Sr.No	Practical Experiments
1.	1.1 Develop a database application that uses any JDBC driver successfully connected and print proper message on console like "Connection Established". 1.2 Develop a console application to retrieve and display the content of database record on console. 1.3 Develop a program to perform the database driven operation like insert, Delete, Update and select. To perform the above operations create one table named Product. <table><tr><td>Field Name</td><td>Field Type</td></tr><tr><td>Product_Id</td><td>Integer</td></tr><tr><td>Product_Name</td><td>Varchar</td></tr><tr><td>Product_Qty</td><td>Numeric</td></tr><tr><td>Product_Price</td><td>Numeric</td></tr></table> 1.4 Develop a Graphical User Interface that performs the following SQL operations: a) Insert b) Delete c)Update. 1.5 Develop a program to present a set of choice for user to select a product and display the price of product using database

	1.6 Write a RMI program to implements basic concept.
	1.7 Write a RMI program to make subtraction of two numbers.
2.	2.1 Design HTML Page to print the telephone bill (Hint: Use Table Tag)
	2.2 Write a JavaScript that demonstrates the use of +=,-=,*=,/= operators.
	2.3 Write a JavaScript to generate two random numbers and find out maximum and minimum out of it.
	2.4 Create a Form in HTML with two fields, minimum and maximum, write JavaScript to validate that only numeric value is entered in both, and the value entered in minimum is less than the value entered in maximum.
	2.5 Write a JavaScript to find a string from the given text. If the match is found then replace it with another string.
	2.6 Write a JavaScript to show a pop up window with a message Hello and background color lime and with solid black border.
3.	3.1 Write a Servlet to display "Hello World" on browser.
	3.2 Write a Servlet to display all the headers available from request.
	3.3 Write a Servlet to display parameters available on request.
	3.4 Assume that we have got three pdf files for the MCA-1 Syllabus, MCA-2 Syllabus and MCA-3 Syllabus respectively, Now write a Servlet which displays the appropriate PDF file to the client, by looking at a request parameter for the year (1, 2 or 3).
	3.5 Develop a Servlet to authenticate a user, where the loginid and password are available as request parameters from database table Login. In case the authentication is successful, it should setup a new session and store the user's information in the session before forwarding to home.jsp, which displays the user's information like full name, address, etc.
	3.6 Develop an interest calculation application in which user will provide all information in HTML form and that will be processed by servlet and response will be generated back to the user.
	3.7 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)
4.	4.1 Write a simple JSP page to display a simple message (It may be a simple html page).
	4.2 Write a JSP page, which uses the include directive to show its header and footer.
	4.3 Write a JSP Page to use JSP scripting elements.
	4.4 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>).
	4.5 Develop a JSP Page to display the personal information and result information of the student in two different tabular formats.
	4.6 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.
	4.7 Write a JSP Page to which uses Session Tracking for online shopping.