Subject Title: Advanced Java and Web Technologies					
Course Code:	**Year and Semester:** III Year I semester	L	T	P	C
Prerequisites: Prior knowledge of Java programming		3	0	0	3

Course Objectives:

1. To understand database connectivity through Java
2. To acquire knowledge about web application development
3. To introduce XML and processing of XML Data with Java.
4. To introduce Server-side programming with Java Servlets and JSP
5. To introduce Client-side scripting with Java script and AJAX.

UNIT-I **8 Hours**

JDBC Connectivity: JDBC connectivity, types of Jdbc Drivers, connecting to the database, JDBC Statements, JDBC Exceptions, Manipulations on the database.

UNIT-II **10 Hours**

HTML Common tags- List, Tables, images, forms, Frames; Cascading Style sheets;
XML: Introduction to XML, Defining XML tags, their attributes and values, Document Type Definition, XML Schemas, Document Object Model, Extensible Style sheet Language and XSL Transformations, Parsing XML Data – DOM and SAX Parsers in java.

UNIT-III **10 Hours**

Introduction to Servlets: Life cycle of a Servlet, deploying a servlet, The Servlet API, Reading Servlet parameters, Reading Initialization parameters, Handling Http Request & Responses, Using Cookies and Sessions.

UNIT- IV **10 Hours**

Introduction to JSP: The Anatomy of a JSP Page, JSP Processing, Declarations, Directives, Expressions, Code Snippets, implicit objects, Using Beans in JSP Pages, Using Cookies and session for session tracking.

UNIT-V **10 Hours**

Client-side Scripting: Introduction to Javascript, Javascript language – declaring variables, scope of variables, functions. event handlers (onclick, onsubmit etc.), Document Object Model, Form validation, Simple AJAX application.

Text Books:

1. Internet and World Wide Web – How to program, Dietel and Nieto, Pearson.
2. Java Server Pages –Hans Bergsten, SPD O'Reilly.

Reference Books:

1. Chris Bates, "Web Programming, building internet applications", 2nd Edition, WILEY, Dreamtech, 2008.

2. Thomas A Powel, "The Complete Reference: AJAX", 1st Edition, Tata McGraw Hill, 2008.
3. Web Technologies, Uttam K Roy, Oxford University Press

Course Outcomes: At the end of the course student will be able to:

CO1: Summarise different JDBC drivers and their connectivity **(Remember)**
CO2: Quote different built-in and user defined tags used in HTML & XML **(Understand)**
CO3: Classify server side and client-side application development through Servlets **(Understand)**
CO4: Relate JSP tags with server sides codes **(Apply)**
CO5: Use client-side application development through Java Script. **(Apply)**

Advanced Java and Web Technologies Lab

Course Objectives

At the end of the course the students will understand

1. Basic technologies to develop web documents.
2. Dynamic HTML Pages and Event handling mechanism.
3. XML and Web Servers.
4. Java Servlet technologies.

Course Outcomes:
At the end of the course the students will be able to

CO-1: Create static web pages using HTML, CSS, and JavaScript.
CO-2: Design dynamic Web Pages using client side scripting.
CO-3: Create XML documents and work with web servers to create web applications
CO-4: Write server side programs using Java Servlets and Jsp.

List of Programs

1. Develop and demonstrate a HTML5 document that illustrates the use of ordered list, unordered list, table, borders, padding, color, and the & tag.

2. Write HTML5 code to provide intra and inter document linking.

3. Create a web page with the following using HTML5:
   a. To embed an image map in a web page
   b. To fix the hot spots
   c. Show all the related information when the hot spots are clicked

4. Create a web page with all types of Cascading style sheets.

5. Create a web page with the following using CSS:
    a. Text shadows, rounded corners and box shadows.
    b. Linear and Radial gradients.
    c. Animation
    d. Transitions and Transformations.

6. Create a HTML5 form that interacts with the user. Collect first name, last name and date of birth and display that information back to the user.

7. Develop a HTML5 Form, which accepts any Mathematical expression. Write JavaScript code to evaluate the expression and Displays the result.

8. Create a HTML5 form that has number of Textboxes. When the form runs in the Browser fill the textboxes with data. Write JavaScript code that verifies that all textboxes has been filled. If a textboxes has been left empty, popup an alert indicating which textbox has been left empty.

9. Create a home page for "Cyber book stores" that will display the various books available, the authors and prices of the books. Include a list box that contains various subjects and a "submit" button, which displays information about the books on the subject required by the user.

10. Create a bank entry form using appropriate form elements. The account number must not be visible on the screen. The name and address must be stored in one place. There must be a text box showing the opening balance of the customer. The user should be able to make a choice of either a deposit (or) withdrawal transaction. Accordingly, when the user deposits (or) withdraws money, the opening balance must be updated using CREDIT/DEBIT button. The user should not be able to make any entries in the opening balance text box.

11. Using functions, write a JavaScript code that accepts user name and password from user. Check their correctness and display appropriate alert messages. Restrict the user to try only for a maximum of three times.

12. Create an HTML5 file for registration with three text fields name, mobile number and address. Write JavaScript to validate name, mobile number and address. Mobile number should be of 10 digits. Show alert message when user enter invalid entity.

13. Write a JavaScript code block using arrays and generate the current date in words, this should include the day, month and year.

14. Write a program to display a form that accepts student's name, age, father name. When age field receives its focus display message that age should be 18 to 25. After losing its focus from age field verify user entered in between given values or not display respective message

15. Create a web page using two image files, which switch between one another as the mouse pointer moves over the images. Use the mouseover and mouseut event handlers.

16. Perform the following using JavaScript

- To update the information into the array, in the "Click" event of the button "Update".
- To sort the elements of an array (Use array object)
- To find the duplicate elements of an array.

17. Demonstrate the following:
- String and Math objects
- Alphabetic and Numeric fields
- Calendar object.

18. Write an XML file which displays the book details that includes the following:
1) Title of book 2) Author name 3) Edition 4) Price
Write a DTD to validate the above XML file and display the details in a table (to do this use XSL).

19. Design an XML document to store information about a student in an engineering college. The information must include college id, Name of the College, Brach, Year of Joining, and e-mail id. Make up sample data for 3 students. Create a CSS style sheet and use it to display the document.

20. Create an XML document, which contains 10 users information. Implement a program, which takes User Id as an input and returns the user details by taking the user information from the XML document

21. Create tables in the database which contain the details of items (books in our case Like Book name, Price, Quantity, Amount) of each category. Modify your catalogue page in such a way that you should connect to the database and extract data from the tables and display them in the catalogue page using JDBC.

22. Using java servlets and JDBC store and retrieve the following information from a database:
a. Name b. Password c. Email id d. Phone number

23. Write a JSP program to conduct online examination and to display student mark list available in a database.

24. Demonstrate Cookie and Session Management in Servlets