

# 22CS303 WEB TECHNOLOGIES

Hours Per Week :

L	T	P	C
2	0	4	4

**PREREQUISITE KNOWLEDGE:** OOPs through JAVA.

## COURSE DESCRIPTION AND OBJECTIVES:

This course offers the concepts of web development like static and dynamic web page design and provides internet programming knowledge, web servers, application servers, and design methodologies using object-oriented concepts. The objective of this course is to build web applications using JSP, PHP, Angular JS, and Node JS with a client and server-side scripting technologies that span multiple domains.

## MODULE - 1

### UNIT-1

8L+0T+16P=24 Hours

#### INTRODUCTION

**HTML:** Creating structured documents, Links and navigation, Tables, Forms, and Frames.

**HTML 5:** Introduction to HTML5, The HTML5 Canvas, HTML5 audio and Video;

**CSS:** Cascading Style Sheets, CSS Properties.

**Java Script:** Learning Java Script- how to add scripts to your page, DOM, variables, operators, functions, conditional statements, Looping, Events, Built-in objects, form and regular expression validation.

### UNIT-2

8L+0T+16P=24 Hours

#### JDBC AND JSP

**JDBC:** What is JDBC, system requirements, types of JDBC Drivers, creating database tables, connecting to a database, executing SQL statements, processing result sets, and making changes to a result set.

**JSP:** JSP Processing, Generating Dynamic Content using Scripting Elements, Implicit JSP Objects, Sharing Data between JSP pages, JSP application design with JDBC.

#### PRACTICES:

- Design a webpage having four frames named a)Top, b)Center, c)Bottom, and d) Left. The top frame should contain the company logo and title. The bottom frame should contain copyright information. The left frame should contain various links like Home, Products, Services, Branches, About, etc., When clicked on respective links, the content should display on the center frame.
- Design a catalog page that should contain the details of all the books available on the website in a table. The details should contain the following: a) Snapshot of Cover Page b) Author Name c) Publisher. d) Price. e) Add to cart button.
- Design a timetable schedule for your current semester using the Table tag.
- Design a HTML page for Student Registration Form using Form Elements that includes Form, input-text, password, radio, checkbox, hidden, button, submit, reset, label, textarea, select, option and file upload.
- Design a HTML web page with at least two <h1>, two images, two buttons, and appropriate CSS to display,  
All<h1>with font-size 12pt, and bold in Verdana font using In line CSS.  
All<img>with border color yellow, thickness 10px using Document Level CSS.  
All<input type='button'>should change background color to red on mouse over them using External CSS.



Source: <https://www.dreamstime.com/web-development-coding-programming-internet-technology-business-concept-web-development-coding-programming-internet-technology-image121903546>

**SKILLS:**

- ✓ Perform client-side validation using Java Script and Angular JS.
- ✓ Store and retrieve data using Node JS.
- ✓ Generate dynamic web pages using JSP and PHP.
- ✓ Develop a web application or website for any real-time requirements.

- Design a HTML page having a text box and four buttons viz Factorial, Fibonacci, Prime and Palindrome. When a button is pressed an appropriate java script function should be called to display the following:  
Factorial of that number.  
Fibonacci series up to that number.  
Prime numbers up to that number.  
Is it palindrome or not?
- Design a web page that contains a color pallet, when the user moves the mouse to the particular area, then it changes the background color of the web page.
- Design a registration page to validate the following fields using Java Script.  
Make sure the user name starts with an upper case letter.  
The user name must have at least one digit.  
Ensure that Email is valid.  
Ensure that the password length is between 8 to 20 characters.  
Make sure the password contains at least one upper case letter, one lower case, and one special character exclude [. (dot), ,(comma), ;(semicolon), : (colon)].
- Design a web page to display the videos on-page, on user selection using frames and HTML5 tags.
- Design a web page to display different types of objects using HTML5 Canvas.
- Design a web application to validate entered username and password through JDBC connection program and display user information on successful login and provide profile editing option to the user. Else display an error message.
- Develop a JSP application to create a user on successful signup and update user information on successful login and display user information on the home screen and provide a logout button.
- Make an HTML form that collects the last name. Send the name to JSP page. If there is an employee with that last name, show full details of him or her (just show the first employee if there are multiple people with the same name). If there is no employee with that last name, say "no employee records available."

**MODULE-2****UNIT-1****8L+0T+16P=24 Hours****PHP**

Introduction to PHP, Expressions, and control flow in PHP, functions and objects, Arrays, Accessing MySQL using PHP, Form Handling, Cookies, Sessions, and Authentication.

**UNIT-2****8L+0T+16P=24 Hours****ANGULAR JS AND NODE JS**

**Angular JS:** Introduction, Expressions, Modules, Directives, Controllers, Filters, Events, Forms, Form Validation.

**Node JS:** Introduction, Setup Dev Environment, Modules, Node Package Manager, Creating Web server, File System, Events, Express.js, Accessing MySQL from Node.js.

**PRACTICES:**

- Design a web page using PHP, upload image into web page and display image, when user clicking on view button.
- Design a personal Information form, Submit & Retrieve the form data using \$\_GET(), \$\_POST() and \$\_REQUEST() Variables.
- Design a login page to validate username and password through MySQL. If login is successful display user information on home page and modify user information on edit page using sessions. When user logged out, destroy all user-related sessions.
- Design a web page to accept payment data from user and do the payment, on successful

payment display details on the screen. A Session should be set while doing payment up to 10 minutes after that link/payment page should be destroyed irrespective of user payment.

- Design a web application to validate user registration page using Angular JS.
- Design a search engine using Angular JS. On key press, display data on web page.
- Design a web page to validate user name and password using: Node.js and PHP. When user clicks on login button, server checks the data availability in data base. If the data matches a successful login page is returned. Otherwise, a failure message is shown to the user.
- Design a web application to display the active duration of the user, i.e., time between login and logout.

### COURSE OUTCOMES:

Upon successful completion of this course, students will have the ability to:

CO No.	Course Outcomes	Blooms Level	Module No.	Mapping with POs
1	Usage of HTML, HTML5, CSS, Java Script, and PHP in web application development.	Apply	1, 2	1
2	Apply Angular JS features for form validation and Node JS, and JDBC concepts to perform database operations from web pages.	Apply	1, 2	1
3	Analyse the suitability of Node JS and JSP technologies to build solutions for real-world problems.	Analyse	2	2
4	Design and develop three tier web applications using JSP, Node JS, Angular JS, and PHP.	Creating	2	3

### TEXT BOOKS:

1. Jon Duckett, "Beginning Web Programming with HTML, XHTML, and CSS", 2nd Edition, Wiley Publishing, Inc, 2008.
2. Robin Nixon, "Learning PHP, MySQL & JavaScript WITH JQUERY, CSS & HTML5", 4th Edition, O'Reilly, 2015.

### REFERENCEBOOKS:

1. Paul Deitel, Harvey Deitel, Abbey Deitel, "Internet & World Wide Web How to Program", 5th Edition, Pearson Education, 2012.
2. Kishori Sharon, "Java APIs, Extensions and Libraries with JavaFX, JDBC, jmod, jlink, Networking and the process API", 2nd Edition, Apress, 2018.
3. Brad Dayley, Brendan Dayley, and Caleb Dayley, "Node.js, Mongo DB and Angular Web Development: The definitive guide to using the MEAN stack to build web applications," 2nd Edition, Pearson Education, 2018.
4. Steve Prettyman, "Learn PHP 7 Object Oriented Modular Programming using HTML5, CSS3, JavaScript, XML, JSON, and MySQL", 1st edition, Apress, 2015.
5. Adrian W. West and Steve Prettyman, "Practical PHP 7, MySQL 8, and MariaDB Website Databases: A Simplified Approach to Developing Database-Driven Websites", 1st edition, A Press, 2018.