22DS2T3: WEB TECHNOLOGIES

Course Name	Web Technologies		L	T	P	C	CIA	SEE	TM
Course Code	22DS2T3		4	0	0	4	30	70	100
Year of Introduction: 2021	Year of Offering: 2021	Year of Revision: 2022	Percentage of Revision: NIL						
L-Lecture, T-Tutorial, **P**-Practical, **C**-Credits, **CIA**-Internal Marks, **SEE**-External Marks, **TM**-Total Marks									

Course Description and Purpose: Web Technologies (22DS2T3) is a course that illustrates WWW including *Browser* and *HTTP Protocol* and various *HTML Tags* and use them to develop the user friendly web pages, *JavaScript* and define the CSS with its types to develop the *Dynamic Web Pages,* develop the *Modern Web Pages* using the *XML Elements* and Servlets with different layouts as per need of applications, *Interactive Forms* for Web Applications using *Node* and *Express*.

Course Objectives:
This course will help enable the students t o understand and learn various WWW including *Browser* and *HTTP Protocol* and various *HTML Tags* and use them to develop the user friendly web pages, *JavaScript* and define the CSS with its types to develop the *Dynamic Web Pages,* develop the *Modern Web Pages* using the *XML Elements* and Servlets with different layouts as per need of applications, *Interactive Forms* for Web Applications using *Node* and *Express*.

Course Objectives:
- To understand the concepts of WWW including *Browser* and *HTTP Protocol* and various *HTML Tags* and use them to develop the user friendly web pages.
- To use the *JavaScript* and define the CSS with its types to develop the *Dynamic Web Pages*.
- Students will be able to and develop the *Modern Web Pages* using the *XML Elements* and Servlets with different layouts as per need of applications.
- Able to develop *Server Side Scripting* with PHP and JSP to generate the Web Pages dynamically using the Database Connectivity & C# Database Connectivity with Form Validations.
- Able to develop *Interactive Forms* for Web Applications using *Node* and *Express*.

Course Outcomes:
On successful completion of this course, the students:
CO1: Able to understand the concepts of WWW including *Browser* and *HTTP Protocol* and various *HTML Tags* and use them to develop the user friendly web pages.
CO2: Able to use the *JavaScript* and define the CSS with its types to develop the *Dynamic Web Pages*.
CO3: Students will be able to develop the *Modern Web Pages* using the *XML Elements* and Servlets with different layouts as per need of applications.
CO4: Able to develop Server *Side Scripting* with PHP and JSP to generate the Web Pages dynamically using the Database Connectivity C# Database Connectivity with Form Validations.
CO5: Able to develop *Interactive Forms* for Web Applications using *Node* and *Express*.

UNIT I (12 Hours)

Introduction: What is Internet - History of Internet - Internet Services and Accessibility - Uses of the Internet - Protocols - Web Concepts: The Client/Server Model, Retrieving Data from the Web, How the Web Works? - Web Browsers - Searching information on the Web - Internet Standards.
HTML: Outline of an HTML Document - Head Section Body Section: Headers, Paragraphs, Text Formatting, Linking, Internal Linking, Embedded Images, Lists, Tables, Frames, Other Special Tags and Characters, HTML Forms.

UNIT II (12 Hours)

Java Script: Introduction to Scripting - Control Statements I - Control Statements II - Functions - Arrays, Objects - Document Object Model - Events.

Dynamic HTML (DHTML): Introduction - Cascading Style Sheets (CSS) - Coding CSS - Properties of Tags - Property Values - Other Style Properties - In Line Style Sheets - Embedded Style Sheets - External Style Sheets - Grouping – Inheritance - Class as Selector - ID as Selector - Contextual Selector - Pseudo Classes and Pseudo Elements - Positioning – Backgrounds -Element Dimensions - DHTML Document Object Model and Collections - Using the Collections All - Moving Object around the Document - Event Handling - Assigning Event Handlers - Event Bubbling - Filters and Transition Filters - Transitions - Data Binding - Using Tabular Data Control - Sorting Data - Dynamic Sorting - Filtering.

UNIT III (12 Hours)

XML: Introduction, HTML vs. XML - Syntax of XML Document - XML Attributes - Use of elements vs. Use of Attributes - XML Validation - Well Formed XML Documents - Valid XML Documents - XML DTD: Internal DTD, External DTD - The Buildings blocks of XML Documents, DTD Elements : Declaring an Element, Empty Elements, Elements with Data, Elements with Children - Wrapping - Declaring only one Occurrence of the Same Elements - Declaring Minimum one Occurrence of the Same Element - Defining Zero or One Occurrence of the Same Element - Declaring Mixed Content - DTD Attributes: Declaring Attributes, Default Attribute Value, Implied attribute, required attribute, fixed attribute value, enumerated attribute values, DTD Entries, DTD Validation, XSL, XSL Transformation, XML NameSpaces, XML Schema.

Servlets: Introduction - Advantages of Servlets over CGI - Installing Servlets - The Servlet Life Cycle - Servlets API - A Simple Servlet - Handling HTTP Get Requests - Handling HTTP Post Requests - Cookies - Session Tracking - Multi Tier Applications using Database Connectivity - Servlets Chaining.

UNIT IV (12 Hours)

PHP: Introduction - PHP Basics - String Processing and Regular Expressions - Form Processing and Business Logic - Connecting to a Database - Using Cookies - Dynamic Content - Operator Precedence Chart.

Java Server Pages (JSP): Introduction - Advantages of JSP - Developing first JSP - Components of JSP - Reading Request Information - Retrieving the Data Posted from a HTML File to a JSP File - JSP Sessions - Cookies - Disabling Sessions.

Database Connectivity & Form Validations using C#: Database Connectivity using C#.Net-Form Validations (Name Validation, Integer Validation, Floating Point Validation, Email Validation, Combo Box Validation).

UNIT V (12 Hours)

Getting Started with Node: Getting Node - Using the Terminal - Editors - npm - A Simple Webserver with Node (Hello World, Event Driven Programming, Routing, Serving Static Resource).

Saving Time with Express: Scaffolding - Initial Steps (Views and Layouts, Static Files and Views, Dynamic Content in Views).

Form Handling: Sending Client Data to Server - HTML Forms - Encoding - Approaches in Form Handling - Form Handling with Express - Handling AJAX Forms – File Uploads- jQuery File Upload.

Reference Text Books:

1. N.P.Gopalan, J.Akilandeswari, Web Technologies - A Developer's Perspective, PHI(2008).
2. Harvey M.Deitel and Paul L.Deitel, Internet and World Wide Web How To Program, Prentice Hall, 5th Edition
3. Ethan Brown, Web Development with Node & Express, O'Reilly, First Edition, 2014
4. Vikas Gupta, Comdex .Net 4.5 Programming Course Kit, Dreamtech Press, 2014

5. Robert W. Sebesta, Programming the World Wide Web, Third Edition, Pearson Education, 2007
6. Anders Moller and Michaelschwarzbach, An Introduction to XML and Web Technologies, Addison Wesley, 2006
7. Chris Battes, Web programming-Building Internet Application, Second Edition, Wiley, 2007.
8. Jeffrey C. fackson, Web Technologies- Computer Science Perspective, Pearson Education, 2008.

PARVATHANENI BRAHMAYYA SIDDHARTHA COLLEGE OF ARTS & SCIENCE

(An Autonomous College in the jurisdiction of Krishna University)

M.Sc.(Computational Data Science). Second Semester

Course Name: Web Technologies

Course Code: 22DS2T3

(w.e.f admitted batch 2022-23)

Time: 3 Hours **Max Marks: 70**

SECTION-A

Answer ALL questions. All Questions Carry Equal Marks. (5×4 = 20 Marks)

1.(a) What are protocols used in accessing the internet? (CO1, L1)

(or)

(b) What are the differences between *Inline* & *Block* Elements? (CO2, L1)

2. (a) What is *DOM*? (CO2, L1)

(or)

(b) What is advantage of using *External Style Sheets*? (CO2,L1)

3. (a) What is *XML Validation*? (CO3,L1)

(or)

(b) What is *Servlet*? Explain in detail. (CO3,L1)

4. (a) List C# functions to validate Name of the user. (CO4,L1)

(or)

(b) List the components of JSP. (CO4,L2)

5. (a) State various *services of Web Browser*. (CO5,L5)

(or)

(b) What are the features of *JQuery*? Explain it (CO5,L5)

SECTION-B

Answer ALL questions. All Questions Carry Equal Marks. (5×10 = 50 Marks)

6. (a) Explain services of *Internet* and *Web Browser*. (CO1, L2)

(or)

(b) Explain *Client-Server Architecture;* write its *attributes* with *example program*. (CO1,L2)

7. (a) List (i) *JavaScript Variables* and (ii) *Characteristics* of *Array Objects*. (CO2, L4)

(or)

(b) Examine building an *External Style Sheet*. Explain advantages and disadvantages of *External Style Sheets* with an example. (CO2, L4)

8. (a) Develop *TDC, DTD* with *building blocks* of *DTD* . (CO3,L3)

(or)

(b) Develop *Life Cycle of Servlets*. Write the session tracker that tracks the number of access and last access of data of a particular web page. (CO3,L3)

9. (a) Discuss (i) *String Processing* (ii) *Regular Expressions* (iii) *Cookies*. (CO4, L6)

(or)

(b) Discuss *Components* of *JSP* and write a JSP Program to accept *username* and *password* from *a user* and *validate them*. (CO4, L6)

10. (a) Explain *Views* and *Layouts* with example program. (CO5,L5)

(or)

(b) Explain how to upload Files using *jQuery* with example program. (CO5, L5)