

**Name of Department: - Computer Science and Engineering**

1. Subject Code: **TCS521** Course Title: **User Interface Design**
2. Contact Hours: L: **3** T: **-** P: **2**
3. Semester: I
4. Pre-requisite:

1. Basic HTML: Structure and HTML Tags, Images, List, Tables, Anchors and Form Elements
2. CSS : Inline, Internal and External Stylesheet, Borders, Backgrounds, text and margin properties
3. HTML5: Features, Semantic Tags, New Input Elements, Media Tags, Graphics and HTML API's
4. CSS3 : Features, border radius, box shadow, image border, custom web font, backgrounds - Advanced text effects(shadow), 2D and 3D Transformations, Transitions to elements, Animations

**5. Course Outcomes: After completion of the course students will be able to**

1. Understand the concepts and architecture of the World Wide Web. To understand and practice Markup Language.
2. Understand and practice Embedded Dynamic Scripting on Client-side Internet Programming. To understand and practice Web Development Techniques on client-side.
3. Investigate the features of NoSQL MongoDB Database and use Server-side JS Framework
4. Implement Client-side JS Framework.
5. Identify and deploy common abstract user interface components
6. Analyze a user interface context (consisting of one or more user types and one or more tasks/activities) and choose an appropriate type of user interface

**6.Detailed Syllabus**

UNIT	CONTENTS	Contact Hrs
Unit – I	HTML5: What is HTML5 - Features of HTML5 – Semantic Tags – New Input Elements and tags - Media tags (audio and video tags) – Designing Graphics using Canvas API - Drag and Drop features – Geolocation API - Web storage (Session and local storage).  CSS3: What is CSS3 – Features of CSS3 – Implementation of border radius, box shadow, image border, custom web font, backgrounds - Advanced text effects(shadow) - 2D and 3D Transformations - Transitions to elements - Animations to text and elements	8
Unit – II	Responsive Design: What is RWD – Introduction to RWD Techniques – Fluid Layout, Fluid Images and Media queries - Introduction to RWD Framework  Twitter Bootstrap – Bootstrap Background and Features - Getting Started with Bootstrap - Demystifying Grids – OffCanvas - Bootstrap Components - JS Plugins – Customization	10
Unit – III	Introduction - Core features - Data types and Variables - Operators, Expressions and Statements - Functions & Scope - Objects - Array, Date and Math related Objects - Document Object Model - Event	10

	Handling – Browser Object Model - Windows and Documents - Form handling and validations. Object-Oriented Techniques in JavaScript - Classes – Constructors and Prototyping (Sub classes and Super classes) – JSON – Introduction to AJAX. Introduction – jQuery Selectors – jQuery HTML - Animations – Effects – Event Handling – DOM – jQuery DOM Traversing, DOM Manipulation – jQuery AJAX	
<b>Unit – IV</b>	What is NoSQL Database - Why to Use MongoDB - Difference between MongoDB & RDBMS - Download & Installation - Common Terms in MongoDB – Implementation of Basic CRUD Operations using MongoDB	<b>10</b>
<b>Unit – V</b>	Introduction - What is Node JS – Architecture – Feature of Node JS - Installation and setup - Creating web servers with HTTP (Request & Response) – Event Handling - GET & POST implementation - Connect to NoSQL Database using Node JS – Implementation of CRUD operations.	<b>7</b>
	<b>Total</b>	<b>45</b>

#### Reference Books:

1. Harvey & Paul Deitel& Associates, Harvey Deitel and Abbey Deitel, “Internet and World Wide Web - How To Program”, Fifth Edition, Pearson Education, 2011.
2. Achyut S Godbole and Atul Kahate, “Web Technologies”, Second Edition, Tata McGraw Hill, 2012.
3. Thomas A Powell, Fritz Schneider, “JavaScript: The Complete Reference”, Third Edition, Tata McGraw Hill, 2013.
4. David Flanagan, “JavaScript: The Definitive Guide, Sixth Edition”, O'Reilly Media, 2011
5. Bear Bibeault and Yehuda Katz, “jQuery in Action”, January 2008
6. Nathan Rozentals, “Mastering TypeScript”, April 2015
7. Nate Murray, Felipe Coury, Ari Lerner and Carlos Taborda, “ng-book, The Complete Book on Angular 4” September 2016
8. Amol Nayak, “MongoDB Cookbook Paperback” , November 2014
9. KrasimirTsonnev, “Node.js by Example Paperback”, May 2015

#### Reference Links:

1. Web link for Responsive Web Design - <https://bradfrost.github.io/this-is-responsive/>
2. Ebook link for JavaScript -[https://github.com/jasonzhuang/tech\\_books/tree/master/js](https://github.com/jasonzhuang/tech_books/tree/master/js)
3. Web link for TypeScript: <https://www.typescriptlang.org/>
4. Web link for Angular4.0: <https://angular.io/>
5. Web link for Node.js :<https://nodejs.org/en/>
6. Web link for MongoDB: <https://www.mongodb.com/>