

Course code	Course Title	L	T	P	C
BITE304L	Web Technologies	3	0	0	3
Pre-requisite	BCSE103E	Syllabus version			
		1.0			
Course Objectives:					
1. To develop understanding of the web architecture and web languages.					
2. To familiarize with web development tools and techniques.					
3. To illustrate web development environment and methodologies.					
Course Outcomes:					
1. Develop interactive and responsive web pages using HTML, CSS and Bootstrap					
2. Use JavaScript and JQuery to create dynamic web pages.					
3. Formulate web applications that employ the MVC architecture and integrate Client and Server using the AJAX.					
4. Exhibit the working of server-side scripts and open-source databases					
5. Devise sophisticated full stack web applications by combining advanced web frameworks and technologies.					
Module:1	Web Essentials	7 hours			
Evolution of web - Web architecture - HTML5: Text tags, Graphics, Form elements, Semantic tags - CSS3: Selectors, Backgrounds and borders, Text effects, Cascading and inheritance of style properties, Box Model, Positioning - Introduction to responsive design- Bootstrap: Containers, Grids, Typography, Flex, and Forms.					
Module:2	Client-side Scripting	6 hours			
JavaScript basics –Arrays- Functions - JavaScript object – HTML DOM - DOM methods – Events- Form Validation-Regular expressions- JQuery.					
Module:3	Web Application and Angular JS	6 hours			
Web applications- Web application frameworks: MVC framework-Angular JS: Introduction, Data binding, Directives, Modules, Scopes, Controllers, Expressions, Filters, Events, Form-Single Page Application-Multiple Views and Routing – Service.					
Module:4	Client/Server Communication	5 hours			
HTTP- Request/Response Model- HTTP Methods- REST APIs-AJAX –AJAX calls - XMLHttpRequest object- Data formats-JSON -AJAX with JQuery					
Module:5	Server-side Web Application Development	6 hours			
Node.js - NPM – Call backs - Events- Express framework: Request-Response, Routing- Template engines – Cookies - Sessions - File uploading - Sending email.					
Module:6	NoSQL Database	5 hours			
Introduction to NoSQL Databases - MongoDB database: Basics - Manipulating and accessing MongoDB Documents – Client/Server/Database interaction.					
Module:7	Component-based front-end JS library	8 hours			
Introduction to component-based front-end library: ReactJS – Environment setup – React HTML render – JSX – React Components: functional components, class components- Component Life Cycle - React State – React Props – React Forms – React Events– React Conditionals– React Lists – React Router – React CSS – Hooks - Custom hook - Create a sample React app.					
Module:8	Contemporary Issues	2 hours			
Expert lecture from industry and R & D organizations					

	Total Lecture hours:		45 hours
Text Books			
1.	Brad Dayley, Brendan Dayley, Caleb Dayley, “Node.js, Mongo DB and Angular JS Web Development”, 2017, 2 nd Edition, Addison Wesley - Oreilly, USA.		
2.	Vasan Subramanian, “Pro MERN Stack: Full stack web app development”, 2019, 2 nd Edition, APress, Oreilly.		
Reference Books			
1.	Jessica Minnick, Responsive, “Web Design with HTML 5 & CSS, Cengage Learning”, 2020, 9 th Edition.		
2.	Ethan Brown, “Web Development with Node and Express”, 2019, 2 nd Edition, O'Reilly Media Inc.		
3	Frank Zammetti, “Modern Full-Stack Development: Type Script, React, Node. JS”, 2020, 1 st Edition, Apress.		
Mode of Evaluation: Continuous Assessment Tests, Assignment, Quiz, Final Assessment Test			
Recommended by Board of Studies		20-05-2022	
Approved by Academic Council		No. 66	Date 16-03-2022