

Course Code	Course Title	L	T	P	C
PMCA601L	Full Stack Web Development	3	0	0	3
Pre-requisite	NIL	Syllabus version			
		1.0			
Course Objectives:					
1. To understand the basics of JavaScript and the importance of MEAN and MERN stack					
2. To develop the React and Angular front-end components					
3. To design and development of backend components using Node.js and MongoDB					
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					
4. Integrate Client and Server using the AJAX					
5. Devise sophisticated full-stack web applications by combining advanced web frameworks and technologies					
Module:1	Introduction to Web Development	6 hours			
Evolution of the Internet and World Wide Web - Introduction to HTML5 - Headings, Linking, Images, Lists, Tables, Forms, New HTML5 Form Input Types, Page Structure Elements - Introduction to CSS - Inline Styles, Embedded Style Sheets, Linking External Style Sheets, Backgrounds, Element Dimensions, Box Model and Text Flow, Positioning, Media Types and Media Queries, Drop Down Menus Selectors, Text Shadows, Box Shadows					
Module:2	Introduction to Scripting	7 hours			
JavaScript - Introduction, Operators - Control Statements - Functions, Dialog boxes - Arrays - Objects - Document Object Model - JavaScript Event Handling, Form Processing - Introduction to JQuery - JSON - Ajax Enabled Rich Internet Applications with JSON					
Module:3	Front End framework - Angular JS	4 hours			
Getting Started with Angular - Modules, Directives, Data Binding, Services, Creating a Basic Angular Application - Angular Components - Building Template, Using External Templates, Injecting Directives - Expressions - Using Basic Expressions, Interacting with the Component Class in Expressions - Built-in Directives - Event and Change Detection - Using Browser Events, Emitting Custom Events - Implementing Angular Services in Web Applications - Built-in Service, HTTP Service, Router Service					
Module:4	Web Server - Node JS	5 hours			
Getting Started with Node.js - Installing Node.js, Working with Node Packages, Creating a Node.js Application - Using Events, Listeners, Timers, and Callbacks in Node.js - Implementing Event emitter, Implementing Callbacks - Accessing the File System from Node.js - Implementing HTTP Services in Node.js - Saving Time with Express - The Request and Response Objects - Form Handling - Sending Client Data to Server, Form Handling with Express - Cookies and Sessions					
Module:5	React Framework	8 hours			

Introduction - JSX - React Components - Classes, Passing Data using Properties and Children - React State - Initial State, Updating State, Event Handling, Stateless Components, Designing Components -React Forms - Controlled Components, More Filters, Specialized Input Components, Server Rendering - Basic Server Rendering, Webpack for the Server			
Module:6	Full Stack Tools and Libraries		8 hours
React Router - Simple Routing, Route Parameters, Query Parameters, Links, Programmatic Navigation, Nested Routes - React Bootstrap - Bootstrap Installation, Buttons, Navigation Bar, Panels, Tables, Form, The Grid System, Inline Forms, Horizontal Forms, Validating Alerts			
Module:7	Full Stack Integration and Deployment		5 hours
NoSQL Database - MongoDB Basics - Documents, Collections, Database, Query Language, Installation, The Mongo Shell - MongoDB CRUD Operations - MongoDB Node.js Driver - Schema Initialization - Reading from MongoDB - Writing to MongoDB			
Module:8	Contemporary Issues		2 hours
Guest Lecture from Industry and R&D Organizations			
	Total Lecture hours:		45 hours
Text Book(s)			
1.	Paul Deitel, Harvey Deitel and Abbey Deitel, "Internet and World Wide Web: How To Program", 2018, 5 th Edition, Pearson.		
2.	Vasan Subramanian, Pro MERN "Stack: Full Stack Web App Development with Mongo, Express, React, and Node", 2019, 2 nd Edition, Apress.		
Reference Books			
1.	Brad Dayley, Brendan Dayley, Caleb Dayley, "Node.js, MongoDB, and Angular Web Development", 2017, 2 nd Edition, Addison Wesley, Oreilly.		
2.	Ethan Brown, "Web Development with Node and Express", 2019, 2 nd Edition, O'Reilly Media Inc..		
Mode of Assessment: CAT, Written Assignment, Quiz, FAT and Seminar			
Recommended by Board of Studies		04-05-2023	
Approved by Academic Council		No. 70	Date 24-06-2023