

**SWARNANDHRA COLLEGE OF ENGINEERING AND TECHNOLOGY
(AUTONOMOUS)**

**SEETHARAMPURAM, NARSAPUR-534280, WG- DT, AP
DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS**

TEACHING PLAN

Course Code	Course Title	Year / Sem	Branch	Contact Hr/ week	Academic Year
24MC3T02	FULL STACK DEVELOPMENT	II/I	MCA	6	2025-26

Course objectives:

The main objective of the course is to provide understanding on the essential javascript, bootstrap, ReactJS concepts for web development and to store and model data in a no sql database.

Course Outcomes (COs):

Course Outcomes		Knowledge Level (K)#
CO1	Explain and apply the core concepts of JavaScript, including variables, data types, arrays, strings, functions, objects, and control structures.	K3
CO2	Demonstrate DOM manipulation and event handling by dynamically updating web content and building interactive front-end components.	K4
CO3	Develop enhanced forms with validation and implement basic React components using props, children, and composition within the MERN stack	K5
CO4	Design stateful React applications with efficient component communication, and integrate REST/GraphQL APIs for full-stack interaction.	K5
CO5	Create and optimize full-stack web applications by implementing MongoDB CRUD operations and configuring modularization with Webpack for production-ready deployment.	K6

UNIT	Outcomes	Bloom s Level	TOPIC/ACTIVITY		Text Books	Contact HOURS	Delivery Method
I	Explain and apply the core concepts of JavaScript, including variables, data	K3	UNIT-I				
			1.1	Basic JavaScript Instructions	T1	1	
			1.2	Statements, Comments, Variables	T1	1	
			1.3	Data Types, Arrays, Strings	T1	1	
			1.4	Functions	T1	1	

	types, arrays, strings, functions, objects, and control structures.		1.5	Methods & Objects	T1	1	Chalk & Board, Digital Board & PPT Programming Demonstration
			1.6	Decisions & Loops	T1	1	
				UNIT II			
II	Demonstrate DOM manipulation and event handling by dynamically updating web content and building interactive front-end components.	K4	2.1	Document Object Model: DOM Manipulation	T1	1	Chalk & Board, Digital Board & PPT Programming Demonstration
			2.2	Selecting Elements	T1	1	
			2.3	Working with DOM Nodes	T1	1	
			2.4	Updating Element Content & Attributes	T1	1	
			2.5	Events, Different Types of Events	T1	1	
			2.6	How to Bind an Event to an Element	T1	1	
			2.7	Event Delegation	T1	1	
			2.8	Event Listeners	T1	1	
				UNIT III			
III	Develop enhanced forms with validation and implement basic React components using props, children, and composition	K5	3.1	Form enhancement and validation	T2	1	Chalk & Board, Digital Board & PPT Programming Demonstration
			3.2	Introduction to MERN: MERN components	T2	1	
			3.3	Server less Hello world	T2	1	
			3.4	React Components: Issue Tracker	T2	1	
			3.5	React Classes	T2	1	

	within the MERN stack.		3.6	Composing Components	T2	1	
			3.7	Passing Data Using Properties	T2	1	
			3.8	Passing Data Using Children	T2	1	
			3.9	Dynamic Composition	T2	1	
			UNIT IV				
IV	Design stateful React applications with efficient component communication, and integrate REST/GraphQL APIs for full-stack interaction.	K5	4.1	React State: Initial State	T2	1	Chalk & Board, Digital Board & PPT Programming Demonstration
			4.2	Async State Initialization	T2	1	
			4.3	Updating State	T2	1	
			4.4	Lifting State Up	T2	1	
			4.5	Event Handling	T2	1	
			4.6	Stateless Components	T2	1	
			4.7	Designing Components	T2	1	
			4.8	State vs. Props	T2	1	
			4.9	Component Hierarchy	T2	1	
			4.10	Communication	T2	1	
			4.11	Stateless Components	T2	1	
			4.12	Express	T2	1	
			4.13	REST API	T2	1	

			4.14	GraphQL	T2	1	
			4.15	Field Specification	T2	1	
			4.16	Graph Based	T2	1	
			4.17	Single Endpoint	T2	1	
			4.18	Strongly Typed, Introspection	T2	1	
			4.19	Libraries	T2	1	
			4.20	The About API GraphQL Schema File	T2	1	
			4.21	The List API	T2	1	
			4.22	List API Integration	T2	1	
			4.23	Custom Scalar types	T2	1	
			4.24	The Create API	T2	1	
			4.25	Create API Integration	T2	1	
			4.26	Query Variables	T2	1	
			4.27	Input Validations	T2	1	
			4.28	Displaying Errors	T2	1	
				UNIT V			
			5.1	MongoDB: Basics	T2	1	
			5.2	Documents	T2	1	

V	Create and optimize full-stack web applications by implementing MongoDB CRUD operations and configuring modularization with Webpack for production-ready deployment.	K6	5.3	Collections	T2	1	Chalk & Board, Digital Board & PPT Programming Demonstration
			5.4	Databases	T2	1	
			5.5	Query Language	T2	1	
			5.6	Installation	T2	1	
			5.7	The Mongo Shell	T2	1	
			5.8	MongoDB CRUD Operations	T2	1	
			5.9	Create	T2	1	
			5.10	Read	T2	1	
			5.11	Projection	T2	1	
			5.12	Update	T2	1	
			5.13	Delete	T2	1	
			5.14	Aggregate	T2	1	
			5.15	MongoDB Node.js Driver	T2	1	
			5.16	Schema Initialization	T2	1	
			5.17	Reading from MongoDB	T2	1	
			5.18	Writing to MongoDB	T2	1	
			5.19	Modularization and Webpack	T2	1	

			5.20	Back-End Modules Front-End Modules and Webpack Transform and Bundle	T2	1	
			5.21	Libraries Bundle	T2	1	
			5.22	Hot Module Replacement	T2	1	
			5.23	Debugging	T2	1	
			5.24	Define Plugin: Build Configuration	T2	1	
			5.25	Production Optimization	T2	1	
		Course Beyond Syllabus	Deploying MERN applications to Netlify, Vercel, or Heroku.		1		
			MID EXAM-II				
			Total Classes - 77				

Text Books:

S.No.	Author(s)	Title	Publisher	Edition	Year
1	Jon Duckett	JavaScript & jQuery: Interactive Front-End Web Development	Wiley	----	2014
2	Vasan Subramanian,	Pro MERN Stack: Full Stack Web App Development with Mongo, Express, React, and Node	Apress	---	2019

e-Resources

- <https://github.com/vasansr/pro-mern-stack>
- <https://nptel.ac.in/courses/106106156>
- <https://archive.nptel.ac.in/courses/106/105/106105084/>

(H. LAKSHABHADRA)
A.S.B. Raju (RATESH)
 Faculty

(Signature)
 Head of the Department

(Signature)
 Principal