



RV College of Engineering
An Autonomous Institution affiliated to VTU, Belagavi
Bangalore-560059

Course Title: Full Stack Development Application	Course Code: MCA261IA
Total Contact Hours: 45L+30P	Credits: 02 (L:T:P 3:0:1)
SEE Marks: 100	CIE Marks: 100
Semester: III	Academic Year: 2025-26(ODD)
Lesson Plan Author: Prof.Prashanth K and Dr.Savitha R	Date: 13/10/2025

Q.No	Unit-1	CO	BTL
1.	Explain REPL in the context of node.js with an example	1	1
2.	Define event driven programming with a neat diagram?	2	2
3.	Discuss the challenges faced in node.js	2	1
4.	List out the key features of node.js	2	2
5.	Discuss javascript closures with an example	1	2
6.	List out different modules used in node.js	2	3
7.	Explain an event emitter in node.js with example	2	1
8.	Identify how node.js handles the child threads	2	1
9.	Illustrate different types of streams in node.js	3	4
10.	Interpret how Express js handle middleware	1	2
11.	Compare between Node.js and Express js	2	2
12.	Explain middleware functions in Express.js	3	2
13.	How can you create a simple API using Express.js	2	2
14.	Classify between res.send() and res.json()	2	2
15.	Explain the purpose of the next() function in Express.js	4	3
16.	Which method is used to send data to a server in HTTP?	4	3
17.	What is the difference between NodeJS and Angular	2	2
18.	What are the three methods to avoid callback hell?	3	3
19.	How do you implement request validation in an Express project?	2	1
20.	What are <i>route handlers</i> , and how would you implement them?	2	2
	Unit2		
21.	What are the advantages of using React?	1	1
22.	What is useState() in React?	2	2
23.	What are the differences between functional and class components?	1	1
24.	What is the virtual DOM? How does react use the virtual DOM to render the UI?	2	2
25.	Explain about types of side effects in React component	3	2
26.	What is the use of useEffect React Hooks?	3	2
27.	How to pass data between sibling components using React router?	3	2
28.	Can React Hook replaces Redux?	2	2
29.	What are the lifecycle methods of React?	4	4
30.	How to prevent re-renders in React?	2	2
31.	What is the difference between the ES6 and ES5 standards?	4	3
32.	What are forms in React?	3	3



33.	What is an arrow function and how is it used in React?	2	2
34.	What is the difference between componentDidMount() and useEffect()?	2	2
35.	What is the MERN stack, and how do its components work together?	2	2
36.	What is the role of Express.js in a MERN application?	3	2
37.	How do you connect a MongoDB database to a Node.js application?	2	2
38.	What is JSX in React, and why is it used?	2	1
39.	Explain the difference between state and props in React.	2	2
40.	What is the purpose of useEffect in React?	4	4
41.	How do you structure a large-scale MERN application for better maintainability?	2	3
42.	How do you handle authentication and authorization in a MERN stack project?	3	3
43.	Explain how to implement server-side rendering with React in a MERN project.	4	4
44.	What steps do you take to improve performance in a production-level MERN app?	3	3
45.	How do you implement real-time features (like chat) in a MERN stack app?	2	4
Unit-3			
46.	What are some of the advantages of MongoDB?	2	2
47.	When to use MongoDB?	2	2
48.	What are the data types in MongoDB?	3	3
49.	How to perform queries in MongoDB?	3	3
50.	How do you Update a Document?	4	4
51.	What are some features of MongoDB?	4	4
52.	What is the Mongo Shell?	4	4
53.	What is a Collection in MongoDB?	4	4
54.	Explain the SET Modifier in MongoDB?	4	4
55.	Explain the process of Sharding.	4	3
56.	Explain the concept of pipeline in the MongoDB aggregation framework.		
57.	Explain the Replication Architecture in MongoDB.	3	3
58.	Finding Documents using Operators	2	2
59.	Explain how to update documents in MongoDB.	3	2
60.	Explain BSON and Its Significance in MongoDB.	2	2
Unit -4		2	2
61.	What is RESTful API?	1	2
62.	Explain CORS With an example	3	4
63.	How do you secure REST API MERN stack project	4	4
64.	How does MongoDB integrate with REST APIs in a mern project	4	4
65.	Define messaging in terms of RESTful web services	3	3
66.	What are the HTTP methods	4	4
67.	What is the concept of statelessness in REST	4	2
68.	What is URI and how does it works	2	2



69.	Compare between put and patch methods	2	2
70.	We can develop webservices using web sockets as well as REST. What are the differences between these two?	4	4
Unit- 5			
71.	Why do we need React Router?	4	3
72.	Can we use react router with server side rendering	2	2
73.	What is browser history in React Router	2	2
74.	Explain nested routing	3	2
75.	What are the differences between react-router-dom and react-router-native?	3	2
76.	Can we share data among routes in React Router?	3	3
77.	What is the best way to allow users to navigate between different routes without using links?	2	2
78.	What are the main components of React Router?	3	4
79.	What is the purpose of BrowserRouter in React Router?	2	2
80.	Explain the difference between Link and NavLink in React Router.	2	2
81.	What is the purpose of the Redirect component in React Router?	4	4
82.	What is the purpose of the with Router higher-order component in React Router?	3	3
83.	How do you access route parameters in React Router?	3	3
84.	What is the difference between HashRouter and BrowserRouter in React Router?	3	3
85.	How do you handle query parameters in React Router?	4	3
86.	What are the benefits of using React Router over traditional server-side routing?	3	4
87.	How do you pass props to components rendered by React Router routes?	4	2
88.	What are route parameters in React Router?	3	3
89.	Explain the difference between server-side routing and client-side routing.	3	2
90.	What is code splitting in React Router.	3	1
91.	What is the purpose of the location object in React Router?	3	2
92.	What is the difference between Route and Switch in React Router?	3	3
93.	Explain the difference between declarative and imperative navigation in react-router-dom and when each approach is suitable.	4	3
94.	What are React Router hooks? Can you provide examples of how you would use them in a React application?	4	2
95.	Discuss the concept of nested routing and its advantages in a React application.	4	4
96.	Explain how you would implement route transition animations in a React application using react-router-dom.	4	2
97.	Explain how you would handle route-based authentication and authorization checks in a React application using react-router-dom and server-side rendering (SSR).	3	2



98.	How to Pass URL Parameters in React Router?	4	2
99.	What are Routes and Route elements in React Router?	3	2
100.	How do you handle programmatic navigation in React Router with a custom hook?	4	2