



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

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

<b>Q.No</b>	<b>Unit-1</b>	<b>CO</b>	<b>BTL</b>
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 route handlers, and how would you implement them?	2	2
	<b>Unit2</b>		
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.	<b>What is an arrow function and how is it used in React?</b>	2	2
34.	<b>What is the difference between componentDidMount() and useEffect()?</b>	2	2
35.	<b>What is the MERN stack, and how do its components work together?</b>	2	2
36.	<b>What is the role of Express.js in a MERN application?</b>	3	2
37.	<b>How do you connect a MongoDB database to a Node.js application?</b>	2	2
38.	<b>What is JSX in React, and why is it used?</b>	2	1
39.	<b>Explain the difference between state and props in React.</b>	2	2
40.	<b>What is the purpose of useEffect in React?</b>	4	4
41.	<b>How do you structure a large-scale MERN application for better maintainability?</b>	2	3
42.	<b>How do you handle authentication and authorization in a MERN stack project?</b>	3	3
43.	<b>Explain how to implement server-side rendering with React in a MERN project.</b>	4	4
44.	<b>What steps do you take to improve performance in a production-level MERN app?</b>	3	3
45.	<b>How do you implement real-time features (like chat) in a MERN stack app?</b>	2	4
	<b>Unit-3</b>		
46.	<b>What are some of the advantages of MongoDB?</b>	2	2
47.	<b>When to use MongoDB?</b>	2	2
48.	<b>What are the data types in MongoDB?</b>	3	3
49.	<b>How to perform queries in MongoDB?</b>	3	3
50.	<b>How do you Update a Document?</b>	4	4
51.	<b>What are some features of MongoDB?</b>	4	4
52.	<b>What is the Mongo Shell?</b>	4	4
53.	<b>What is a Collection in MongoDB?</b>	4	4
54.	<b>Explain the SET Modifier in MongoDB?</b>	4	4
55.	<b>Explain the process of Sharding.</b>	4	3
56.	<b>Explain the concept of pipeline in the MongoDB aggregation framework.</b>		
57.	<b>Explain the Replication Architecture in MongoDB.</b>	3	3
58.	<b>Finding Documents using Operators</b>	2	2
59.	<b>Explain how to update documents in MongoDB.</b>	3	2
60.	<b>Explain BSON and Its Significance in MongoDB.</b>	2	2
	<b>Unit -4</b>	2	2
61.	<b>What is RESTful API?</b>	1	2
62.	<b>Explain CORS With an example</b>	3	4
63.	<b>How do you secure REST API MERN stack project</b>	4	4
64.	<b>How does MongoDB integrate with REST APIs in a mern project</b>	4	4
65.	<b>Define messaging in terms of RESTful web services</b>	3	3
66.	<b>What are the HTTP methods</b>	4	4
67.	<b>What is the concept of statelessness in REST</b>	4	2
68.	<b>What is URI and how does it works</b>	2	2



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



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