

Web Technology - II (2401CS491)

Semester	Credit	Contact Hours			Examination Scheme (Marks)				Total
					Theory		Practical		
		L	T	P	SEE	CE	SEE	CE	
4	6	4	-	4	40	30	20	10	100

Course Objective

Students will be able to understand modern web technologies based on Java Script.

Prerequisite

Web Designing

Course Outcome

At the end of this course, students will be able to:

1. setup NodeJS projects using Node Package Manager.
2. implement Restful APIs using ExpressJS. (BL-3)
3. use ReactJS to create Front-End. (BL-3)
4. consume API using ReactJS.
5. understand importance of API authentication and documenting API. (BL-2)

Course Content

T: Teaching Hours, **W:** Weightage

Sr.	Topics	T	W
1	NodeJS Introduction to Node JS, Setup Development Environment, Node JS Modules, Node Package Manager, Creating Web Server, File System, Debugging Node JS Application, Events.	11 hr	20 %
2	ExpressJS Express JS, Serving Static Resources, Database Connectivity, API using NodeJS and ExpressJS.	13 hr	20 %
3	Introduction to ReactJS Introduction to ReactJS, Introducing JSX, Rendering Elements, Component and Props, State and Lifecycle, Handling Events, Conditional Rendering.	11 hr	20 %
4	Routing and Hooks in ReactJS Routing, React CSS styling, Hooks, Forms, Consuming API in ReactJS.	13 hr	20 %
5	Authentication and best practices for API Importance of API authentication, API authentication and authorization methods like basic, API key, TLS encryption, OAuth2.0, JWT, OIDC, best practices for creating and consuming API, creating API documentation.	12 hr	20 %

Reference Books

1. Developing Web Application
| by Ralph Moseley, M.T. Savaliya | Wiley India | Ed. Latest
2. Professional Node.js
| by Pedro Teixeira | John Wiley & Sons
3. Node.js in Action
| by Alex Young | Dreamtech Press
4. Learning React: Fundamental Web Development with react and redux
| by Alex Banks | O'Reilly

Suggested List of Practicals / Tutorials

1. Demonstrate the use of Node Package Manage (NPM).

2. Understanding package.json file
3. Demonstrate the use of core NodeJS modules (part-01)
4. Demonstrate the use of core NodeJS modules (part-02)
5. Demonstrate the use of core NodeJS modules (part-03)
6. Demonstrate the use of http core module in NodeJS
7. Demonstrate the basic ExpressJS web application
8. Create middleware in ExpressJS
9. Setup MongoDB
10. Setup documents in MongoDB
11. Create a restful CRUD API using NodeJS, Express and MongoDB for faculty.
12. Create a restful CRUD API using NodeJS, Express and MongoDB for student and product.
13. Setting up ReactJS development Environment
14. Create Hello World ReactJS app
15. Demonstrate props in ReactJS
16. Demonstrate the use of map method in ReactJS
17. Demonstrate Routing in ReactJS
18. Demonstrate the use of hooks in ReactJS
19. Create GUI Calculator using ReactJS
20. Implement CRUD operation on Array in ReactJS
21. Perform CRUD operation on MockAPI using ReactJS
22. Demonstrate API Authentication Techniques and Create API Documentation
23. Create a mini project for library management system (part-01)
24. Create a mini project for library management system (part-02)
25. Create a mini project for attendance management system (part-01)
26. Create a mini project for attendance management system (part-02)

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