DARSHAN UNIVERSITY - Faculty of Engineering

Department of Computer Science & Engineering
SYLLABUS FOR 4 Semester BTech PROGRAMME
Web Technology - II (2401CS491)

Type of Course: BTech

Prerequisite: Web Desiging

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

Teaching and Examination Scheme:

Teaching Scheme			Credit	Examination Scheme					Total
Lecture Hrs/ Week	Tutorial Hrs/ Week	Practical Hrs/ Week		External		Internal			
				T	P	T	CE	P	
4	0	4	6	40	20	30	-	10	100

SEE - Semester End Examination, **CIA** - Continuous Internal Assessment (It consists of Assignments/Seminars/Presentations/MCQ Tests, etc.)

Contents:

Sr.	Topic	Weightage	Teaching Hrs.
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.	20%	11
2	**ExpressJS**: Express JS, Serving Static Resources, Database Connectivity, API using NodeJS and ExpressJS.	20%	13
3	**Introduction to ReactJS**: Introduction to ReactJS, Introducing JSX, Rendering Elements, Component and Props, State and Lifecyle, Handling Events, Conditional Rendering.	20%	11
4	**Routing and Hooks in ReactJS**: Routing, React CSS styling, Hooks, Forms, Consuming API in ReactJS.	20%	13
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.	20%	12

*Continuous Evaluation:

It consists of Assignments/Seminars/Presentations/Quizzes/Surprise Tests (Summative/MCQ) etc.

Reference Books:

1. Developing Web Application
   By Ralph Moseley, M.T. Savaliya | Wiley India | Latest Edition
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

Useful Links:

1. https://reactjs.org/docs/getting-started.html
2. https://nodejs.org/en/docs/

List of Practical:

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)