PRASAD V. POTLURI SIDDHARTHA INSTITUTE OF TECHNOLOGY

(Autonomous)

Kanuru, Vijayawada-520007

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING (Data Science)

III B. Tech – II Semester CSE (Data Science)

Full Stack Web Development-II

Course Code	20DS3653	Year	III	Semester	II
Course Category	PCC Lab	Branch	CSE(Data Science)	Course Type	Practical
Credits	1.5	L-T-P	0-0-3	Prerequisites	Full Stack Web Development-2
Continuous Internal Evaluation	15	Semester End Examination	35	Total Marks	50

Course Outcomes		
Upon successful completion of the course, the student will be able to		
CO1	Demonstrate experimental procedures through oral communication and submit comprehensive documentation reports.	L2
CO2	Apply Full Stack Web Development (MERN) technologies for developing Web Applications using different tools.	L3
CO3	Analyze different Full Stack Web Development technologies by implementing them in different Web Applications.	L4
CO4	Design and evaluate a Web Application to analyze the outputs of different web-based applications.	L5

Contribution of Course Outcomes towards achievement of Program Outcomes & Strength of correlation (3:High,2:Moderate,1:Low)													
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2									2				
CO2	3				3							2		
CO3		3										2		
CO4				3								2		

Syllabus		
Exp No.	**Contents**	**Mapped CO**
1	**SPA with React** Create a Single Page Application (SPA) using React. Implement components, state management, and routing to create a multi-page application within a single web page.	CO1 to CO4
2	**SPA with React** Extend the web application from Experiment-1 to implement sharing data between components within a single web page.	CO1 to CO4
3	**Node.js** Create a Node.js application that serves as a simple web server. Implement routing and handle different HTTP methods (GET, POST, PUT, DELETE) using the Express.js framework.	CO1 to CO4
4	**Node.js** Extend the Node.js application from Experiment-3 by adding middleware functions for request handling, logging, and error handling. Implement middleware for parsing request bodies and handling CORS (Cross-Origin Resource Sharing).	CO1 to CO4
5	**Express.js** Develop a RESTful API using Express.js. Implement routing, controllers, and middleware to handle CRUD operations for a specific resource (e.g., user management, product management).	CO1 to CO4
6	**Express.js** Extend the Express.js application from Experiment-3 by integrating a database (e.g., MySQL, PostgreSQL, or MongoDB) and implementing data persistence for the RESTful API.	CO1 to CO4
7	**React, Node.js, Express.js, and SQL** Develop a full-stack web application using React for the front-end, Node.js and Express.js for the back-end, and a SQL database (MySQL or PostgreSQL) for data storage. Implement CRUD functionality and user authentication.	CO1 to CO4
8	**React, Node.js, Express.js, MongoDB** Create a full-stack web application using React for the front-end, Node.js and Express.js for the back-end, and MongoDB for data storage. Implement CRUD operations and data retrieval.	CO1 to CO4
9	**React, Node.js, Express.js, MongoDB** Extend the application from Experiment-8 by implementing user authentication and authorization features, such as user registration, login, and role-based access control.	CO1 to CO4
10	**React, Node.js, Express.js, MongoDB** Enhance the application from Experiment-9 by adding real-time features using WebSocket's or socket.io. Implement functionality like real-time updates, notifications, or chat functionality.	CO1 to CO4
11	**React, Node.js, Express.js, MongoDB** Continue working on the application from Experiment-10 by implementing additional features or enhancements based on the project requirements. Perform testing, debugging, and optimization.	CO1 to CO4

12	**Capstone Project: Full-Stack Web Development** Deploy the full-stack web application developed in the previous experiments to a hosting platform or cloud service. Perform final testing and optimization. Prepare documentation and a presentation to showcase the application's features and functionality.	CO1 to CO4

Learning Resources
Text Books
1. Programming the World Wide Web, Robet W Sebesta, Eighth Edition, 2020, Pearson Education. 2. Learning React: A Hands-On Guide to Building Web Applications Using React and Redux, Kirupa Chinnathambi, Second Edition, 2018, Addison-Wesley.
Reference Books
1. React: Up & Running: Building Web Applications, Stoyan Stefanov and Adam Freeman, Second Edition, 2021, O'Reilly. 2. Express in Action by Evan Hahn, 2016.
e- Resources & other Digital Material
1. Node.js: https://youtu.be/TlB_eWDSMt4?feature=shared 2. ExpressJS: https://youtu.be/KtnHb7FMk2Q?feature=shared 3. ReactJS: https://youtu.be/QFaFIcGhPoM?feature=shared 4. CURD Operations: https://youtu.be/enOsPhp2Z6Q?feature=shared