# DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
## Industry Certified Value Added Course
### on
### "**Mastering Full Stack Development: MERN Stack**"
### 22-07-2024 to 26-07-2024

**45 HOURS**

**Objectives**

- To understand the concept of components, props, state, and lifecycle methods of React
- To make use of functional components in React and utilize built-in React components
- To acquire knowledge to manage user inputs using Text Input and handle touch events with Button and Touchable components
- To provide students with knowledge in MongoDB and CRUD operations.

**UNIT 1: Introduction to React**                     **(9 Hours)**

Overview of React and its benefits - Setting up a development environment - Installing Node.js and npm - Installing React CLI - Creating a React project - Components and Props - State and Lifecycle - Building a simple application

**UNIT 2: Component-based Architecture**                **(9 Hours)**

Overview of React architecture - concept of components - functional components vs. class components - React built-in components (View, Text, Image, ScrollView, etc.) - reusable components **-** Running the app on device

**UNIT 3: Handling Events and Forms**                 **(9 Hours)**

Event handling in React - Forms and controlled components - Handling user input with forms - Form validation techniques

**UNIT 4: React Router**                               **(9 Hours)**

Introduction to React Router - Setting up routes in a React application - Flexbox layout - Styling with StyleSheet - Platform-specific styles - Introduction to React Navigation - Stack Navigator - Tab Navigator - Drawer Navigator - Use Effect Hook - Introduction to MongoDB - CRUD Operations

**UNIT 5: Backend Integration**                         **(9 Hours)**

Todo list using React component - Backend connection using Node.js, Express.js, and MongoDB - Building a multi-page web application using React - Integrating React with external APIs

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### Value Added Course on "Mastering Full Stack Development: MERN Stack"

**COURSE OUTCOMES (COs):**

**Course Outcome**

**On successful completion of this course, the students will be able to:**

| CO. No. | CO Statements |
|---------|---------------|
| CO1 | Built set up development environments and create basic projects using React |
| CO2 | Apply the concept of components and how to create functional components in React |
| CO3 | Make use of user inputs and touch events, enhancing participants' skills in building interactive applications |
| CO4 | Experiment with Flexbox layout, styling with StyleSheet, and various navigation methods using React Navigation |
| CO5 | Create a todo list application using React components and connected it to a backend using Node.js, Express.js, and MongoDB |