

## INT252:WEB APP DEVELOPMENT WITH REACTJS

L:2 T:0 P:2 Credits:3

**Course Outcomes:** Through this course students should be able to

- CO1 :: understand advanced JavaScript concepts
- CO2 :: develop JSX components and use props in React app
- CO3 :: compose and manipulate states and should develop an understanding of events & Hooks
- CO4 :: use forms with state and validating the form for errors and display errors
- CO5 :: make a react app by using HTTP methods and routing the pages
- CO6 :: validate or debug the react app and deploy app onto the server

### Unit I

**Refreshing JavaScript** : ES6 Refresher- Classes, Arrow Functions, Variables (let, const, var), Array Methods like .map(), Destructuring, Spread Operator, Modules

**Introduction to SPA, MPA and React framework** : Best practices of front-end development, Understanding Single Page Applications and Multi Page Applications (Real-World SPAs & React Web Apps, Introduction to React framework, Features of React, Advantages and Disadvantages of React

### Unit II

**ReactJS installation** : Installing React using Create React App, React Environment , Folder Structure, JSX, Understanding Component Basics, JSX introduction, createElement() arguments, JSX vs React.createElement() method, JSX expressions, Rendering Elements into DOM

**Components and styles in React** : Creating components, Class components and Function components Functional Components, React Virtual DOM, Props, CSS in React - Inline styling, CSS stylesheets, CSS Modules, Adding Bootstrap

### Unit III

**Understanding Hooks** : Hooks basics, Built-in hooks, useState, useEffect, useContext, useRef, useReducer, useCallback, useMemo, custom hooks

**Events, States and component lifecycle in React** : Event handling in React, Stateless and Stateful Components, Creating State, Common pitfalls of state management, Component Lifecycle

### Unit IV

**Working with Forms** : Adding forms, Handling forms, Submitting forms, controlled and uncontrolled components, Forms validation - error checking and displaying errors

### Unit V

**HTTP Methods** : Fetch() and Axios, GET Requests, POST Requests, PUT Request and DELETE Action

**Routing** : Setting up routing and routes, Navigating to pages, Navigating back and next page, Passing data via Query Params, Passing data between pages, Fetching data

### Unit VI

**Redux** : Redux basics, App starting Point for Redux, Understanding the Redux flow, Store and Reducer, Connecting Components, Dispatching actions

**Debugging and Deployment** : Debugging the React App, Building the app, Best practices for its build & deployment process

### List of Practicals / Experiments:

#### List of Practicals

- Demonstrate let, var and const in JavaScript with an example
- Demonstrate classes, arrow Functions, map() in JavaScript
- Demonstrate Destructuring, Spread Operator, Modules
- Demonstrate The difference between JSX and React.createElement() method in ReactJS
- Implement class components in ReactJS
- Implement function components in ReactJS

- Demonstrate States in ReactJS
- Demonstrate styling in ReactJS inline, stylesheets, CSS modules, Bootstrap
- Demonstrate hooks in ReactJS.
- Implement event handling in ReactJS
- Implement a form with Redux
- Create a React app with routes
- Create a React app that fetches data from a public API
- Implement props in ReactJS

**Text Books:** 1. ADVANCED WEB DEVELOPMENT WITH REACT by MEHUL MOHAN, BPB PUBLICATIONS

**References:** 1. REACT: THE COMPREHENSIVE GUIDE by SEBASTIAN SPRINGER, SHROFF/O'REILLY