

## WEB APPLICATION DEVELOPMENT LABORATORY

IV Semester: CSE(AI & ML)								
Course Code	Category	Hours / Week			Credits	Maximum Marks		
AITC11	Core	L	T	P	C	CIA	SEE	Total
		0	0	3	1.5	30	70	100
<b>Contact Classes: Nil</b>		<b>Tutorial Classes: Nil</b>		<b>Practical Classes: 36</b>		<b>Total Classes:36</b>		
<b>Prerequisite: Python Programming</b>								
<b>I. COURSE OVERVIEW:</b>								
<p>This course introduces students to developing web applications. This course presents the basics of HTML5 and CSS3, Other HTML tags for Web application Development. Learn to create links in HTML, Uses of HTML forms. Introduction to the use of Reactstrap for Bootstrap 4-based responsive UI design. React router and its use in developing single-page applications, designing controlled forms. Redux and use it to develop React-Redux powered applications, client-server communication and the use of REST API on the server side, React primitives render to native platform UI.</p>								
<b>II. COURSE OBJECTIVES:</b>								
<b>The students will try to learn:</b>								
<ol style="list-style-type: none"> <li>I. Programming skills in Html5, CSS3, Bootstrap 4.</li> <li>II. Developing skills of Web Applications user interactions using JavaScript (i.e. ES6+).</li> <li>III. Web application Development Database with React and React Native.</li> </ol>								
<b>III. COURSE SYLLABUS:</b>								
<b>Week – 1: HTML LAYOUTS AND LINKS</b>								
<ol style="list-style-type: none"> <li>a. Develop a web application to control over different layouts.</li> <li>b. Create a webpage with HTML describing your department use paragraph and list tags.</li> <li>c. Apply various colors to suitable distinguish key words, also apply font styling like italics, underline and two other fonts to words you find appropriate, also use header tags.</li> <li>d. Create links on the words e.g. “Wi-Fi” and “LAN” to link them to Wikipedia pages.</li> </ol>								
<b>Week – 2: WEB APPLICATION DESIGN FORMTTING</b>								
<ol style="list-style-type: none"> <li>a. Develop a web application with background banner image and navigation menus.</li> <li>b. Develop a web application with responsive images.</li> <li>c. Develop a web application using left menu.</li> <li>d. Develop setting to change the theme of entire web Application.</li> </ol>								
<b>Week – 3: INTRODUCTION TO RESPONSIVE INTERFACE USING BOOTSRAP.</b>								
<ol style="list-style-type: none"> <li>a. Write code for developing responsive web application with Admin panel and tables with static data.</li> </ol>								
<b>Week – 4: BUIDLING INTERFACES USING JAVASCRIPT</b>								
<ol style="list-style-type: none"> <li>a. Set up the Folder Structure.</li> <li>b. Write the Model code and initialize the application.</li> <li>c. Implement the list objects and use cases.</li> <li>d. Implement the create object use case.</li> <li>e. Implement the update object use case.</li> </ol>								
<b>Week – 5: INTRODUCTION TO INTERACTIVE FORMS AND AJAX DATA BINIDNG</b>								
<ol style="list-style-type: none"> <li>a. Developing Web Page Styles using JavaScript and CSS,</li> <li>b. Develop Script interactive forms</li> <li>c. Data binding using Ajax.</li> </ol>								
<b>Week – 6: REACT ENVIRONMENT SETUP</b>								

- a. Setting up development environment.
- b. Integration with Existing Apps.
- c. Running on Device.
- d. Debugging
- e. Testing
- f. Write source code using Typescript.

#### **Week – 7: PROGRAMMING WITH REACT**

- a. Basics Interactive examples.
- b. Function Components and Class Components
- c. React Native Fundamental, Handling Text Input,
- d. Using a scroll View, using List View.
- e. Platform Specific Code.

#### **Week – 8: BUILD A DRUNKEN SNAKE GAME USING HOOKS**

- a. Introduction and scaffolding the project.
- b. Components, Props and Styles.
- c. State and Lifecycle Events.
- d. Extended Game Functionality.
- e. Finishing up and Deployment.

#### **Week – 9: PHP SESSIONS BOX React FOR DATA VISUALIZATION**

- a. Introduction and scaffolding the Project.
- b. Pages and Layout.
- c. Working with an API, CSS-in-JS.
- d. Dynamic Pages and React Hooks.
- e. Custom React Hooks, Dynamic CSS-in-JS.
- f. Finishing up and Deployment.
- g. Optimization and PWA.

#### **Week – 10: CHAT APPLICATION**

- a. Firebase Environment. Introduction and Scaffolding the project.
- b. Private and Public pages, Context API.
- c. Creating Side bar and Dashboard
- d. Creating and displaying Chat Rooms.
- e. Creating Layout for Chat page.

#### **Week – 11: CHAT APPLICATION API RESPONSES**

- a. Context API Problem-solution for the chat messages.
- b. Denormalization of the data to be stored in app.
- c. Displaying chat feed for Interactive UI along with Real time user presence.

#### **Week – 12: DATABASES HANDLING**

- a. Role Based Access.
- b. Messages Likes and deletion.
- c. File and Audio Chat Messages
- d. Extended Chat Features and Deployment

#### **IV. REFERENCE BOOKS:**

1. Adam Boduch and Roy Derks, “React and React Native: A Complete Hands-on Guide to Modern Web and Mobile Development with React.js”, 3<sup>rd</sup> Edition, 2020.
2. W Hans Bergsten, “Java Server Pages”, O’Reilly, 3<sup>rd</sup> Edition, 2003.
3. D. Flanagan, “Java Script”, O’Reilly, 6th Edition, 2011.
4. Jon Duckett, “Beginning Web Programming”, WROX, 2<sup>nd</sup> Edition, 2008.

#### **V. WEB REFERENCES:**

1. <https://www.codecademy.com/learn/paths/web-development/>
2. <https://nptel.ac.in/courses/106/105/106105084/>
3. <https://medium.com/@aureliomerenda/create-a-native-web-app-with-react-native-web-419acac86b82>
4. <https://www.coursera.org/learn/react-native>
5. <https://desirecourse.net/react-native-and-redux-course-using-hooks/>