INSTITUTE OF AERONAUTICAL ENGINEERING
(Autonomous)
Dundigal - 500 043, Hyderabad, Telangana

COURSE CONTENT

WEB SYSTEMS ENGINEERING							
IV Semester: CSE / IT							
Course Code	**Category**	**Hours / Week**			**Credits**	**Maximum Marks**		

Course Code	**Category**	**L**	**T**	**P**	**C**	**CIA**	**SEE**	**Total**
ACSD14	**Core**	3	0	0	3	40	60	100

Contact Classes: 45	**Tutorial Classes: Nil**	**Practical Classes: Nil**	**Total Classes: 45**

Prerequisite: Object Oriented Programming

I. COURSE OVERVIEW:

This course introduces students to create concurrently a web app and a native app (for Android and iOS) with React Native and React Native Web. It covers HTML for structuring and presenting content on the World Wide Web. CSS being used to format structured content. To create a dynamic and interactive experience for the user it covers JAVASCRIPT. To build the applications using React concepts such as JSX, REDUX and PHP.

II. COURSESOBJECTIVES:
The students will try to learn
I. The fundamentals of HTML and CSS to design static and dynamic web pages.
II. The concepts of client side programming with Bootstrap , JavaScript, Ajax , JSX.
III. The MVC architecture, about React and built single and multiple page applications using REACT with REDUX.
IV. The characteristics, systematic methods, model for developing web applications using PHP.

III. COURSE OUTCOMES:
At the end of the course students should be able to:
CO 1   Summarize HTML elements and attributes for structuring and presenting content of webpage based on the user requirement.
CO 2   Make use of CSS properties for formatting webpages.
CO 3   Develop responsive webpage using Bootstrap for viewing web pages in various devices
CO 4   Utilize the concepts of JS with event actions for displaying information on webpages.
CO 5   Identify UI binding library elements for deploying a reusable complex UI React Redux.
CO 6   Develop web applications with the help of React Redux framework and serverside scripting using PHP.

IV.COURSE CONTENT:

MODULE - I: INTRODUCTION TO WEB APPLICATION, HTML AND CSS (10)
Introduction to web application: Internet, Intranet, WWW, Static and Dynamic Web Page; Web Clients; Web Servers; Basics of HTML5 and web design, creating tables, lists, HTML forms. Styles and classes to your web pages, web page layouts with CSS, introduction to responsive web design with CSS3 and HTML5.

MODULE - II: BUILD INTERFCAES USING BOOTSTARP (09)
Introduction to web design from an evolutionary perspective, user interface design through bootstrap, containers, tables, jumbotrons, list, cards, carousal, navigation, modals, flex and forms, responsive web page design, basic UI grid structure.

MODULE - III: INTERACTIVE USER INERFACE AND WEB APPLICATION DEVELOPMENT (10)
JavaScript variable naming rules, data types, expressions and operators, pattern matching with regular expressions, managing web page styles using JavaScript and CSS, script forms, introduction to AJAX.

Introduction to web design from an evolutionary perspective, create a native and web app, JSX, class and function components, props, state, lifecycle methods, and hooks.

MODULE - IV: UI BINDING LIBRARY FOR REACT AND REDUX (09)
Introduction to client-side routing using React Router, global state management and transitions using REDUX, server -side rendering and testing using Jest. Web Development Using REACT is delivered both in a blended learning and self-paced mode.
REDUX store using the official create store function, REDUX toolkit has a configure store API, loading state for that particular API, adding an API service as a middleware, example uses create REACT App.

MODULE - V: INTRODUCTION TO PHP AND SERVER-SIDE SCRIPTING (10)
Introduction to PHP: Declaring variables, data types, arrays, strings, operations, expressions, control structures, functions, Reading data from web form controls like Text Boxes, radio buttons, lists etc., Handling File Uploads, Connecting to database (My SQL as reference), executing simple queries, handling results, Handling sessions and cookies.
File Handling in PHP: File operations like opening, closing, reading, writing, appending, deleting etc. on text and binary files, listing directories.

V. TEXT BOOKS:

1. Alok Ranjan Abhilasha Sinha, Ranjit Battewad, "JavaScript for Modern Web Development: Building a Web Application Using HTML, CSS, and JavaScript", 1st edition, 2020
2. Alex Banks and Eve Porcello, "Learning React: Functional Web Development with React and Redux", 2017.
3. The Complete Reference PHP – Steven Holzner, Tata McGraw-Hill, 2017.

VI. 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", 3rd edition, 2020.
2. W Hans Bergsten, "Java Server Pages", O'Reilly, 3rd edition, 2003
3. D.Flanagan, "Java Script", O'Reilly, 6th edition, 2011.
4. Jon Duckett, "Beginning Web Programming", WROX, 2nd edition, 2008.

VII. ELECTRONICS RESOURCES:
1. http://computer.howstuffworks.com/computer-networking-channel.htm
2. https://www.geeksforgeeks.org/layers-osi-model/
3. https://www.wikilectures.eu/w/Computer_Network
4. https://technet.microsoft.com/en-us/network/default.aspx

VIII. MATERIALS ONLINE
1. Course template
2. Tutorial question bank
3. Tech-talk topics
4. Open-ended experiments
5. Definitions and terminology
6. Assignments
7. Model question paper – I
8. Model question paper – II
9. Lecture notes
10. PowerPoint presentation
11. E-Learning Readiness Videos (ELRV)