Lovely Professional University, Punjab

Course Code	Course Title	Lectures	Tutorials	Practicals	Credits	
CAP756	WEB TECHNOLOGIES	3	0	0	3	
Course Weightage	ATT: 5 CA: 25 MTT: 20 ETT: 50					

Course Outcomes :Through this course students should be able to

CO1 :: remember the latest HTML5 and CSS3 to add unique styling to Bootstrap

CO2 :: understand the components, props, states and component life cycle methods in React JS

CO3 :: apply the single page applications with React JS

CO4 :: analyze the web pages with Grid CSS and Flexbox features

CO5 :: evaluate the reusable React components

	TextBooks (T)		
Sr No	**Title**	**Author**	**Publisher Name**
T-1	HTML & CSS: THE COMPLETE REFERENCE	THOMAS A POWELL	Mc Graw Hill Education
T-2	LEARNING REACT: MODERN PATTERNS FOR DEVELOPING REACT APPS	ALEX BANKS, EVE PORCELLO	O'REILLY

	Reference Books (R)		
Sr No	**Title**	**Author**	**Publisher Name**
R-1	WEB ENABLED COMMERCIAL APPLICATION DEVELOPMENT USING HTML, JAVASCRIPT, DHTML AND PHP	IVAN BAYROSS	BPB PUBLICATIONS
R-2	ADVANCED WEB DEVELOPMENT WITH REACT	MEHUL MOHAN	BPB PUBLICATIONS
R-3	LEARNING REACT NATIVE: BUILDING NATIVE MOBILE APPS WITH JAVASCRIPT	BONNIE EISENMAN	O'REILLY

Relevant Websites (RW)		
Sr No	**(Web address) (only if relevant to the course)**	**Salient Features**
RW-1	www.reactjs.org	This is the Official website of ReactJS

RW-2	https://www.w3schools.com/react/	This is the tutorial for ReactJS

Audio Visual Aids (AV)		
Sr No	**(AV aids) (only if relevant to the course)**	**Salient Features**
AV-1	https://www.udemy.com/share/103Lgg2@FEdgfUtjWlQIe0ZKAntyQD5uSlRhYFo=/	Full Stack Web Development HTML, CSS, Bootstrap and React JS

Software/Equipments/Databases		
Sr No	**(S/E/D) (only if relevant to the course)**	**Salient Features**
SW-1	HTML, CSS, JavaScript, React	This is the set of software to be used for this Course

LTP week distribution: (LTP Weeks)	
Weeks before MTE	7
Weeks After MTE	7
Spill Over (Lecture)	

Detailed Plan For Lectures

Week Number	Lecture Number	Broad Topic(Sub Topic)	Chapters/Sections of Text/reference books	Other Readings, Relevant Websites, Audio Visual Aids, software and Virtual Labs	Lecture Description	Learning Outcomes	Pedagogical Tool Demonstration/ Case Study / Images / animation / ppt etc. Planned	Live Examples
Week 1	Lecture 1	HTML(basic tags)	T-1 R-1		Lecture-0 basic tags	Student will be aware of the Course plan and basic HTML tags	White board+ Marker, PPT, Demonstration	
	Lecture 2	HTML(images and attributes)	T-1 R-1		img tag and its attributes, image map	Student will learn the implementation of images in the HTML web pages	White board+ Marker, PPT, Demonstration	
	Lecture 3	HTML(lists)	T-1 R-1		Implementation of ordered lists, unordered lists, description lists and nested lists	Student will learn to implement the lists and their attributes	White board+ Marker, PPT, Demonstration	
Week 2	Lecture 4	HTML(block level- inline elements)	T-1 R-1	SW-1 AV-1	web elements, tables, nested tables	Student will learn about different web enabled elements and tables in HTML	White board+ Marker, PPT, Demonstration	
		HTML(tables)	T-1 R-1		web elements, tables, nested tables	Student will learn about different web enabled elements and tables in HTML	White board+ Marker, PPT, Demonstration	

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Week 2	Lecture 5	HTML(tables)	T-1 R-1		web elements, tables, nested tables	Student will learn about different web enabled elements and tables in HTML	White board+ Marker, PPT, Demonstration	
	Lecture 6	HTML(forms)	T-1 R-1		Forms, form input types, action and methods	Student will learn to accept the user input using HTML forms	White board+ Marker, PPT, Demonstration	
Week 3	Lecture 7	CSS(intro to css)	T-1 R-1		Introduction to basics and syntax of CSS	Students will learn the importance and working of CSS in web development	White board+ Marker, PPT, Demonstration	
		CSS(css basics)	T-1 R-1		Introduction to basics and syntax of CSS	Students will learn the importance and working of CSS in web development	White board+ Marker, PPT, Demonstration	
		CSS(selector)	T-1 R-1		Introduction to basics and syntax of CSS	Students will learn the importance and working of CSS in web development	White board+ Marker, PPT, Demonstration	
	Lecture 8	CSS(css colors)	T-1 R-1		Implementation of color, border, background and font properties of CSS	Student will learn the use of color, text and other properties of CSS	White board+ Marker, PPT, Demonstration	
		CSS(background and border)	T-1 R-1		Implementation of color, border, background and font properties of CSS	Student will learn the use of color, text and other properties of CSS	White board+ Marker, PPT, Demonstration	
		CSS(text and font)	T-1 R-1		Implementation of color, border, background and font properties of CSS	Student will learn the use of color, text and other properties of CSS	White board+ Marker, PPT, Demonstration	
	Lecture 9	CSS(debugging in css)	T-1 R-1	AV-1	Implementation of debugging, box model and position properties of CSS	Student will learn the use of CSS properties such as box model and element positioning.	White board+ Marker, PPT, Demonstration	
		CSS(box model)	T-1 R-1		Implementation of debugging, box model and position properties of CSS	Student will learn the use of CSS properties such as box model and element positioning.	White board+ Marker, PPT, Demonstration	
		CSS(css position)	T-1 R-1		Implementation of debugging, box model and position properties of CSS	Student will learn the use of CSS properties such as box model and element positioning.	White board+ Marker, PPT, Demonstration	

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Week 4	Lecture 10	CSS(css float)	T-1 R-1	AV-1	Introduction to CSS properties such as CSS float, display and media	Student will learn about the use and implementation of CSS concepts such as float, display properties and media	White board+ Marker, PPT, Demonstration	
		CSS(display property)	T-1 R-1		Introduction to CSS properties such as CSS float, display and media	Student will learn about the use and implementation of CSS concepts such as float, display properties and media	White board+ Marker, PPT, Demonstration	
		CSS(media queries)	T-1 R-1		Introduction to CSS properties such as CSS float, display and media	Student will learn about the use and implementation of CSS concepts such as float, display properties and media	White board+ Marker, PPT, Demonstration	
	Lecture 11	CSS(flexbox introduction)	T-1 R-1	AV-1	Introduction to the Flexbox CSS	Student will learn the association of Flexbox with CSS	White board+ Marker, PPT, Demonstration	
		CSS(flexbox properties)	T-1 R-1	AV-1	Introduction to the Flexbox CSS	Student will learn the association of Flexbox with CSS	White board+ Marker, PPT, Demonstration	
	Lecture 12				Test 1			
Week 5	Lecture 13	Bootstrap(what is bootstrap?)	T-2 R-1	AV-1	Introduction to bootstrap and Grid CSS	Student will learn the use of bootstrap and the Grid CSS in web development	White board+ Marker, PPT, Demonstration	
	Lecture 14	Bootstrap(including bootstrap in project)	R-1 R-2	AV-1	Associating bootstrap code to the web development	Student will learn how to create web development projects using bootstrap	White board+ Marker, PPT, Demonstration	
	Lecture 15	Bootstrap(web design)	T-2 R-1 R-2	AV-1	Use of bootstrap in the interface design of the web pages	Student will learn how to use bootstrap for web design and implementation of nav bar	White board+ Marker, PPT, Demonstration	
		Bootstrap(nav bar)	R-1 R-2	AV-1	Use of bootstrap in the interface design of the web pages	Student will learn how to use bootstrap for web design and implementation of nav bar	White board+ Marker, PPT, Demonstration	
Week 6	Lecture 16	Bootstrap(grid system)	R-2 R-3	AV-1	Implementation of grid system and header section	Students will learn about the Grid System and Header Section in Bootstrap	White board+ Marker, PPT, Demonstration	

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Week 6	Lecture 16	Bootstrap(header section)	R-2 R-3	AV-1	Implementation of grid system and header section	Students will learn about the Grid System and Header Section in Bootstrap	White board+ Marker, PPT, Demonstration	
	Lecture 17	Bootstrap(css file)	R-2 R-3	AV-1	Implementation of CSS files and fonts	Students will learn about the implementation of CSS in the bootstrap	White board+ Marker, PPT, Demonstration	
		Bootstrap(font and feature section)	R-2 R-3	AV-1	Implementation of CSS files and fonts	Students will learn about the implementation of CSS in the bootstrap	White board+ Marker, PPT, Demonstration	
	Lecture 18	Bootstrap(bootstrap modals)	R-2 R-3	AV-1	Implementation of bootstrap modals and bootstrap card	Students will learn about bootstrap modals and cards.	White board+ Marker, PPT, Demonstration	
		Bootstrap(bootstrap card)	R-2 R-3	AV-1	Implementation of bootstrap modals and bootstrap card	Students will learn about bootstrap modals and cards.	White board+ Marker, PPT, Demonstration	
		Bootstrap(carousel)	R-2 R-3	AV-1	Implementation of bootstrap modals and bootstrap card	Students will learn about bootstrap modals and cards.	White board+ Marker, PPT, Demonstration	
Week 7	Lecture 19	Bootstrap(css z-index)	R-1 R-2 R-3	AV-1	Implementation of image and forms in Bootstrap	Students will learn the concepts of image and forms in Bootstrap	White board+ Marker, PPT, Demonstration	
		Bootstrap(image gallery)	R-2 R-3	AV-1	Implementation of image and forms in Bootstrap	Students will learn the concepts of image and forms in Bootstrap	White board+ Marker, PPT, Demonstration	
		Bootstrap(forms)	R-2 R-3	AV-1	Implementation of image and forms in Bootstrap	Students will learn the concepts of image and forms in Bootstrap	White board+ Marker, PPT, Demonstration	
		SPILL OVER						
Week 7	Lecture 21				Spill Over			
		MID-TERM						
Week 8	Lecture 22	Basics of React(obstacles and roadblocks)	T-2 R-2 R-3	RW-1	Introductory concepts of ReactJS	Students will learn the basics of ReactJS	White board+ Marker, PPT, Demonstration	
		Basics of React(react's future)	T-2 R-2 R-3	RW-1	Introductory concepts of ReactJS	Students will learn the basics of ReactJS	White board+ Marker, PPT, Demonstration	

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Week 8	Lecture 22	Basics of React(keeping up with the changes)	T-2 R-2 R-3	RW-1	Introductory concepts of ReactJS	Students will learn the basics of ReactJS	White board+ Marker, PPT, Demonstration	
		Basics of React(working with the files)	T-2 R-2 R-3	RW-1	Introductory concepts of ReactJS	Students will learn the basics of ReactJS	White board+ Marker, PPT, Demonstration	
	Lecture 23	Functional Programming with JavaScript(declaring variables in es6)	T-2 R-2 R-3	RW-1 RW-2	Introduction to the concepts of variables, arrow functions and ES6	Students will learn the use of variables, arrow functions and ES6	White board+ Marker, PPT, Demonstration	
		Functional Programming with JavaScript(arrow functions)	T-2 R-2 R-3	RW-1 RW-2	Introduction to the concepts of variables, arrow functions and ES6	Students will learn the use of variables, arrow functions and ES6	White board+ Marker, PPT, Demonstration	
		Functional Programming with JavaScript(transpiling es6)	T-2 R-2 R-3	RW-1 RW-2	Introduction to the concepts of variables, arrow functions and ES6	Students will learn the use of variables, arrow functions and ES6	White board+ Marker, PPT, Demonstration	
		Functional Programming with JavaScript(es6 objects and arrays)	T-2 R-2 R-3	RW-1 RW-2	Introduction to the concepts of variables, arrow functions and ES6	Students will learn the use of variables, arrow functions and ES6	White board+ Marker, PPT, Demonstration	
	Lecture 24	Functional Programming with JavaScript(promises)	T-2 R-2 R-3	RW-1 RW-2	Introduction to the concepts of promises and classes.	Students will learn to implement the classes and promises in ReactJS	White board+ Marker, PPT, Demonstration	
		Functional Programming with JavaScript(classes)	T-2 R-2 R-3	RW-1 RW-2	Introduction to the concepts of promises and classes	Students will learn to implement the classes and promises in ReactJS	White board+ Marker, PPT, Demonstration	
Week 9	Lecture 25	Functional Programming with JavaScript(es6 modules)	T-2 R-2 R-3		Introduction to ES6 modules and commonjs	Students will learn to implement ES6 and CommonJS	White board+ Marker, PPT, Demonstration	
		Functional Programming with JavaScript(commonjs)	T-2 R-2 R-3		Introduction to ES6 modules and commonjs	Students will learn to implement ES6 and CommonJS	White board+ Marker, PPT, Demonstration	
	Lecture 26	Functional Programming with JavaScript(what it means to be functional)	T-2 R-2 R-3	RW-1 RW-2	Introduction to functional behaviour and its types	Student will learn to make the projects functional and implement imperative and declarative functions	White board+ Marker, PPT, Demonstration	

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Week 9	Lecture 26	Functional Programming with JavaScript(imperative versus declarative)	T-2 R-2 R-3	RW-1 RW-2	Introduction to functional behaviour and its types	Student will learn to make the projects functional and implement imperative and declarative functions	White board+ Marker, PPT, Demonstration	
		Functional Programming with JavaScript(functional concepts)	T-2 R-2 R-3	RW-1 RW-2	Introduction to functional behaviour and its types	Student will learn to make the projects functional and implement imperative and declarative functions	White board+ Marker, PPT, Demonstration	
	Lecture 27				Test 2			
Week 10	Lecture 28	Pure React(page setup)	T-2 R-2 R-3	RW-1	Setting up the pages and use of virtual DOM	Student will learn the implementation of page setups and virtual DOM	White board+ Marker, PPT, Demonstration	
		Pure React(the virtual DOM)	T-2 R-2 R-3	RW-1	Setting up the pages and use of virtual DOM	Student will learn the implementation of page setups and virtual DOM	White board+ Marker, PPT, Demonstration	
	Lecture 29	Pure React(react elements)	T-2 R-2 R-3	RW-1 RW-2	Implementation of react elements, DOM and their hierarchy	Student will learn to use the react elements, DOM and the children	White board+ Marker, PPT, Demonstration	
		Pure React(react DOM)	T-2 R-2 R-3	RW-1 RW-2	Implementation of react elements, DOM and their hierarchy	Student will learn to use the react elements, DOM and the children	White board+ Marker, PPT, Demonstration	
		Pure React(children)	T-2 R-2 R-3	RW-1 RW-2	Implementation of react elements, DOM and their hierarchy	Student will learn to use the react elements, DOM and the children	White board+ Marker, PPT, Demonstration	
	Lecture 30	Pure React(constructing elements with data)	T-2 R-2 R-3		Construction of react data elements and components	Students will learn to construct the react data elements and the components	White board+ Marker, PPT, Demonstration	
		Pure React(react components)	T-2 R-2 R-3		Construction of react data elements and components	Students will learn to construct the react data elements and the components	White board+ Marker, PPT, Demonstration	
Week 11	Lecture 31	Pure React(DOM rendering)	T-2 R-2 R-3	RW-1 RW-2	Introduction to rendering of DOM in react	Student will learn to render the react elements their relevant factories	White board+ Marker, PPT, Demonstration	

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Week 11	Lecture 31	Pure React(factories)	T-2 R-2 R-3	RW-1 RW-2	Introduction to rendering of DOM in react	Student will learn to render the react elements their relevant factories	White board+ Marker, PPT, Demonstration	
	Lecture 32	React with JSX(react elements as JSX)	T-2 R-2 R-3		Use of react JSX elements	Student will learn to use the react JSX elements	White board+ Marker, PPT, Demonstration	
		React with JSX(babel)	T-2 R-2 R-3		Use of react JSX elements	Student will learn to use the react JSX elements	White board+ Marker, PPT, Demonstration	
	Lecture 33				Test 3			
Week 12	Lecture 34	React with JSX(recipes as JSX)	T-2 R-2 R-3		Implementation of JSX and webpack	Student will learn the implementation of JSX and webpacks	White board+ Marker, PPT, Demonstration	
		React with JSX(intro to webpack.)	T-2 R-2 R-3		Implementation of JSX and webpack	Student will learn the implementation of JSX and webpacks	White board+ Marker, PPT, Demonstration	
	Lecture 35	Props, State, and the Component Tree(property validation)	T-2 R-2 R-3		Implementation of property validation	Student will learn to implement the property validation	White board+ Marker, PPT, Demonstration	
	Lecture 36	Props, State, and the Component Tree(refs)	T-2		Implementation of refs and state management	Students will learn to implement the state management	White board+ Marker, PPT, Demonstration	
		Props, State, and the Component Tree(react state management)	T-2		Implementation of refs and state management	Students will learn to implement the state management	White board+ Marker, PPT, Demonstration	
Week 13	Lecture 37	Props, State, and the Component Tree(refs)	T-2		Implementation of refs and state management	Students will learn to implement the state management	White board+ Marker, PPT, Demonstration	
		Props, State, and the Component Tree(react state management)	T-2		Implementation of refs and state management	Students will learn to implement the state management	White board+ Marker, PPT, Demonstration	
	Lecture 38	React Router and Server (incorporating the router)	T-2		Implementation of the concept of routing	Students will learn to implement the routing and its parameters	White board+ Marker, PPT, Demonstration	
		React Router and Server (router parameters)	T-2		Implementation of the concept of routing	Students will learn to implement the routing and its parameters	White board+ Marker, PPT, Demonstration	

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Week 13	Lecture 39	React Router and Server (incorporating the router)	T-2		Implementation of the concept of routing	Students will learn to implement the routing and its parameters	White board+ Marker, PPT, Demonstration	
		React Router and Server (router parameters)	T-2		Implementation of the concept of routing	Students will learn to implement the routing and its parameters	White board+ Marker, PPT, Demonstration	
Week 14	Lecture 40	React Router and Server (server rendering)	T-2		Associating react app to server	Student will learn how to associate a server to a react app	White board+ Marker, PPT, Demonstration	
		React Router and Server (communication with the server)	T-2		Associating react app to server	Student will learn how to associate a server to a react app	White board+ Marker, PPT, Demonstration	
		SPILL OVER						
Week 14	Lecture 42				Spill Over			
Week 15	Lecture 43				Spill Over			
	Lecture 44				Spill Over			
	Lecture 45				Spill Over			

Scheme for CA:

CA Category of this Course Code is:A0203 (2 best out of 3)

Component	Weightage (%)	Mapped CO(s)
Test 1	50	CO1
Test 2	50	CO1, CO2, CO3, CO4, CO5
Test 3	50	CO2, CO3, CO4, CO5

Details of Academic Task(s)

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Academic Task	Objective	Detail of Academic Task	Nature of Academic Task (group/individuals)	Academic Task Mode	Marks	Allottment / submission Week
Test 1	Implementation of color, border, background and font properties of CSS	Test 1	Individual	Offline	30	11 / 12
Test 2	Implementation of image and forms in Bootstrap	Test 2	Individual	Offline	30	26 / 27
Test 3	Implementation of the concept of routing	Test 3	Individual	Offline	30	40 / 40