



PES UNIVERSITY,
(Established under Karnataka Act No. 16 of 2013)

Department of Computer Science & Engineering
Session : Aug-Dec, 2022

UE21CS242A: WEB TECHNOLOGIES (4:0:0:0:4)
Course Information

Web Technologies course demonstrates an in-depth understanding of the technologies necessary for designing and developing a rich web application in an efficient way.

Course Outcomes:

At the end of the course, the student will be able to,

1. Understand basic web technologies like HTML, CSS and JavaScript
2. Achieve rich user experience by implementing HTML5 features and Asynchronous communication using AJAX and JQuery
3. Understand MERN stack layers (MongoDB, ExpressJS, ReactJS and NodeJS) and Create rich User Interface using React JS
4. Integrate the UI with MongoDB database through NodeJS
5. Create RESTful Web services using ExpressJS

of Credits: 4

of Hours: 75

Class #	Chapter Title/Reference Literature	Topics to be Covered	% of Portions Covered	
			% of Syllabus	Cumulative %
1.	UNIT 1(12 Hours) TB1 : Chapter 1,Chapter 13 : Page no 309 to 323 Chapter 18 and 19	Introduction to Web Architecture and Web protocols (HTTP Request Response Formats, URLs)	21.43%	21.43%
2.		Basic Mark-ups & syntax, HTML elements & attributes		
3.		Web Form 2.0 & Form Controls		
4.		HTML5 (New Tags, Inputs, Elements and Controls),		
5.		CSS3.0-Styles and Style sheets,		
6.		Selectors, Style properties		
7.		Box Model and Positioning		
8.		CSS Flex Property and Media Queries		
9.		JavaScript Basics(Variables, Scope)		
10.		JavaScript Basics: Functions, Hoisting		
11.		JavaScript Built in Objects		
12.		JavaScript Objects		
13.		Review: Lab Assignment on HTML and CSS: Unit 1 – Submission of project Titles and Team Members		
14.		ISA 1		
15.	UNIT 2(12 hours) TB1 : Chapter 17, Chapter 21,22,24,25	JavaScript Objects and Prototypal Inheritance	21.43%	42.86%
16.		DOM Manipulations		
17.		Events		
18.		Event Handling in JavaScript,		

19.		HTML5 (APIs), Audio, Video, Progress		
20.		HTML5 (APIs) – Canvas, SVG, File api, geolocation, web workers.		
21.		JQuery (Introduction, Handling events)		
22.		JQuery (Introduction, Handling events)		
23.		Callbacks & Promises, Single Page Application		
24.		XML Vs JSON, Asynchronous Communication- XHR (properties and methods)		
25.		\$.ajax, \$.get, \$.post,		
26.		\$.load, Fetch API		
27.		Review: Lab Assignment on Javascript : Unit 2		
28.		ISA 2		
29.		Project Review- Submission of wireframe design		
30.	UNIT 3(10 Hours) TB2 : Chapter 1,3,4 ,8	MERN Introduction	17.85%	60.71%
31.		React Classes and Components		
32.		Styling and Complex components		
33.		Properties, States and Context		
34.		Component lifecycle methods		
35.		Self Learning: Explore on Bootstrap template. Apply Bootstrap's choices of color, size, font and layout to your own project.		
36.		Stateless components		
37.		Refs & Keys		
38.		Event Handling		
39.		React Form Handling		
40.		React Form Handling		
41.		Review: Lab Assignment on ReactJS: Unit 3		
42.		ISA 3		
43.	UNIT 4(12 Hours) TB2 : Chapter 6	Understanding Node JS Architecture	21.43%	82.14%
44.		Set up Node JS app		
45.		Node Modules		
46.		Buffers, Streams, File system		
47.		HTTP Module, Handling HTTP Requests		
48.		HTTP Module, Handling HTTP Requests		
49.		Self Learning : Compare AngularJS and ReactJS and NodeJS		
50.		Mongo DB- Documents, Collections		
51.		Reading and Writing to DB		
52.		MongoDB Node JS Driver		
53.		Events and Events Emitter		
54.		Running a react application on NodeJS(Hands-on)		
55.		React Router		
56.		Review: Lab Assignment on NodeJS: Unit 4		
57.		ISA 4		
58.	UNIT 5(10 hours) TB2 : Chapter 5	Introduction to Web services	17.86%	100%
59.		REST API's		
60.		Express Framework Overview		
61.		Routing		
62.		URL Binding		
63.		Error Handling		
64.		Express Middleware		
65.		Form Data		
66.		File Upload		

67.		File Upload		
68.		Review: Lab Assignment on ExpressJS: Unit 5		
69.		Self Learning: Vue JS		
70.		ISA 5		
71.		Guest Lecture		
72.				
73.		Mini Project Presentation and Evaluation		
74.				
75.				

Tools / Languages:

HTML, CSS, JavaScript, MERN Technologies.

Books:

Book Type	Code	Title & Author	Publication Information		
			Edition	Publisher	Year
Text Book	T1	Learning PHP, MySQL & JavaScript, 5th Edition. by Robin Nixon. May 2018, O'Reilly Media, Inc. ISBN: 9781491978917	2 nd	Wiley Publishing	2018
Text Book	T2	Pro MERN Stack: Full Stack Web App Development with Mongo, Express, React, and Node by Vasan Subramanian. March 2017, Apress	1 st	O'Reilly	2017
Reference Book	R1	Beginning Node.js, Express & MongoDB Development by Greg Lim, July 2019	1 st	McGraw Hill	2019
Reference Book	R2	Learning React, Functional Web Development with React and Redux By Alex Banks and Eve Porcello, May 2017, O'Reilly Media	1 st	O'Reilly Media	2017

Course Plan Summary	
Unit Distribution	56 hrs
ISA	5 hrs
Assignments (5 Assignments)	5 hrs
Mini Project Wireframe Design	1 hr
Mini Project Presentation	3 hrs
Self Learning (3 Topics)	3 hrs
Guest Lecture	2 hrs
Total	75 hrs