GUJARAT TECHNOLOGICAL UNIVERSITY

Program Name: Bachelor of Engineering

Level: UG

Branch: Computer Science and Engineering (Data Science)

Course / Subject Code: 3164602

Course / Subject Name: Advanced Web Programming

w. e. f. Academic Year:	A.Y. 2022-23
Semester:	6
Category of the Course:	Open Elective

Prerequisite:	Basic knowledge of Internet and Client Server system is required, Java Script, Dynamic Web Programming
Rationale:	Today's world is driven by Internet based applications. The rationale behind this course is to impart the knowledge of java script based framework for web programming among students of Information Technology. Students will learn advanced web programming concepts related to Java script, Angular JS, Node JS and MongoDB.

Course Outcomes:
After Completion of the Course, Student will able to:

No	Course Outcomes	RBT Level
1	Learn the concepts of client-side programming using CSS and Java Script	R
2	Understand the concepts of Angular JS to extend basic HTML features	U
3	Learn Node JS framework to build dynamic server-side applications	U
4	Study the concept of database using Mongo DB and connect database with application.	A
5	Design and implement full featured web application using the concepts of Angular JS and Node JS	A

**Revised Bloom's Taxonomy (RBT)*

Teaching and Examination Scheme:

Teaching Scheme (in Hours)			Total Credits L+T+ (PR/2)	Assessment Pattern and Marks				Total Marks
				Theory		Tutorial / Practical		
L	T	PR	C	ESE (E)	PA / CA (M)	PA/CA (I)	ESE (V)	
2	0	2	3	70	30	20	30	150

Course Content:

Sr. No.	Course Content	No. of Hours	% of Weightage
1	Introduction to Angular JS Basics and Syntax of Angular JS, Features, Advantages, Application Structure, Basics of routes and navigation, MVC with Angular JS, Services	5	16
2	Angular JS in Details, Modules, Directives, Routes, Angular JS Forms and Validations, Data binding, Creating single page website using Angular JS	8	25
3	Introduction to Node JS,Setup Node JS Environment, Package Manager, Features, Console Object, Concept of Callbacks	6	17
4	Node JS in details Events and Event Loop, timers, Error Handling, Buffers, Streams, Work with File System, Networking with Node (TCP, UDP and HTTP clients and servers), Web Module, Debugging, Node JS REST API, Sessions and Cookies, Design patterns, caching, scalability	8	25
5	Database Programming with Node JS and MongoDB Basics of MongoDB, Data types, Connect Node JS with MongoDB, Operations on data (Insert, Find, Query, Sort, Delete, Update) using Node JS	6	17

Suggested Specification Table with Marks (Theory):

Distribution of Theory Marks (in %)					
R Level	U Level	A Level	N Level	E Level	C Level
30	30	22	10	10	-

Where R: Remember; U: Understanding; A: Application, N: Analyze and E: Evaluate C: Create (as per Revised Bloom's Taxonomy)

Text books & Reference books:

1. Angularjs in Action ISBN 9789351198383 Ruebbelke, Wiley Publication
2. Node.js in Action ISBN 9789386052049 Alex Young, Bradley Meck, Mike Cantelon, Tim Oxley, Marc Harter, T.J. Holowaychuk, Nathan Rajlich, Wiley Publication
3. Node.Js in Practice ISBN 9789351197744 Alex Young, Marc Harter, Ben Noordhuis Wiley Publication
4. Pro AngularJS Freeman Apress publication 5. Professional Node.js By Pedro Teixeira 9781118240564 Wiley Packt Publishing

Suggested Course Practical List: (List can be change according to Latest Development)

Practical list should be prepared based on the content of the subject with following guidelines in mind. 1. Entire syllabus should be covered.
2. Practical list should be designed with real life examples.
3. List should be prepared to cover individual concepts and integration of different concepts on real life problems.

List of e-Learning Resources:

HTML: https://developer.mozilla.org/en-US/docs/Web/HTML
https://www.w3schools.com/html/
https://www.tutorialspoint.com/html/index.htm
CSS: https://developer.mozilla.org/en-US/docs/Web/CSS
https://www.manning.com/books/css-in-depth
https://www.w3schools.com/css/
https://www.tutorialspoint.com/css/index.htm
Java Script: https://javascript.info/
https://github.com/getify/You-Dont-Know-JS
https://www.w3schools.com/js/
https://www.tutorialspoint.com/javascript/index.htm
PHP: https://www.w3schools.com/php/
https://www.tutorialspoint.com/php/index.htm

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