



# GUJARAT TECHNOLOGICAL UNIVERSITY

Bachelor of Engineering

Subject Code: 3161611

ADVANCED WEB PROGRAMMING

6<sup>th</sup> SEMESTER

Type of course: NA

**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.

### Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks				Total Marks
L	T	P		Theory Marks		Practical Marks		
				ESE (E)	PA (M)	ESE (V)	PA (I)	
3	0	2	4	70	30	30	20	150

### Content:

Sr. No.	Contents	Total Hrs	% Weight
1	<b>Refreshing Java Script and CSS</b> CSS syntax, benefits, Responsive design, Bootstrap introduction, Java script syntax, Java script inbuilt objects, Error handling and event handling, DOM, Asynchronous Programming	06	10%
2	<b>Introduction to Angular JS</b> Basics and Syntax of Angular JS, Features, Advantages, Application Structure, Basics of routes and navigation, MVC with Angular JS, Services	08	15%
3	<b>Angular JS in Details</b> Modules, Directives, Routes, Angular JS Forms and Validations, Data binding, Creating single page website using Angular JS	10	20%
4	<b>Introduction to Node JS</b> Setup Node JS Environment, Package Manager, Features, Console Object, Concept of Callbacks	08	15%
5	<b>Node JS in details</b> 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	12	20%
6	<b>Database Programming with Node JS and MongoDB</b> Basics of MongoDB, Data types, Connect Node JS with MongoDB, Operations on data (Insert, Find, Query, Sort, Delete, Update) using Node JS	10	20%



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## Suggested Specification table with Marks (Theory):

Distribution of Theory Marks					
R Level	U Level	A Level	N Level	E Level	C Level
7	14	21	7	7	14

**Legends: R: Remembrance; U: Understanding; A: Application, N: Analyze and E: Evaluate C: Create and above Levels (Revised Bloom's Taxonomy)**

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

## Reference Books:

1. Angularjs in Action ISBN 9789351198383 Ruebelke, 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

## Course Outcome:

1. Learn the concepts of client side programming using CSS and Java Script
2. Understand the concepts of Angular JS to extend basic HTML features
3. Learn Node JS framework to build dynamic server side applications
4. Study the concept of database using Mongo DB and connect database with application.
5. Design and implement full featured web application using the concepts of Angular JS and Node JS

## List of Experiments:

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>



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<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>