

### MERN Stack Development

<b>Course Code</b>	20CS3603	<b>Year</b>	III	<b>Semester</b>	II
<b>Course Category</b>	PCC	<b>Branch</b>	CSE	<b>Course Type</b>	Theory
<b>Credits</b>	3	<b>L-T-P</b>	3-0-0	<b>Prerequisites</b>	Programming with JAVA
<b>Continuou s Internal Evaluation :</b>	30	<b>Semester End Evaluation:</b>	70	<b>Total Marks:</b>	100

#### Course Outcomes

Upon successful completion of the course, the student will be able to

<b>CO1</b>	Understand the fundamental concepts of web application development.	<b>L2</b>
<b>CO2</b>	Apply Node.JS restful APIs to Interact with HTTP services	<b>L3</b>
<b>CO3</b>	Apply React JS concepts to build an Application.	<b>L3</b>
<b>CO4</b>	Apply the concepts of Mongo DB to manipulate the Database	<b>L3</b>

#### Contribution of Course Outcomes towards achievement of Program Outcomes & Strength of correlations (3:Substantial, 2: Moderate, 1:Slight)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
<b>CO1</b>	3													
<b>CO2</b>			1						1	1			3	
<b>CO3</b>			1						1	1			3	
<b>CO4</b>			1						1	1			3	

#### Syllabus

<b>Unit No.</b>	<b>Contents</b>	<b>Mapped CO</b>
<b>I</b>	<b>Introducing the Node.js-to-Angular Stack:</b> Understanding the Basic Web Development Framework, Understanding the Node.js-to-Angular Stack Components, <b>JavaScript Primer</b> - Defining Variables, Understanding JavaScript Data Types, Using Operators, Implementing Looping, Creating Functions, Understanding Variable Scope, Using JavaScript Objects, Manipulating Strings, Working with Arrays, Adding Error Handling	<b>CO1</b>

<b>II</b>	<b>Getting Started with Node.js:</b> Understanding Node.js, Installing Node.js, Working with Node Packages, Creating a Node.js Application, Writing Data to the Console	<b>CO1, CO2</b>
<b>III</b>	<b>Implementing HTTP Services in Node.js:</b> Processing URLs, Understanding Request, Response, and Server Objects, Implementing HTTP Clients and Servers in Node.js, Implementing HTTPS Servers and Clients, <b>Implementing Express in Node.js:</b> Getting Started with Express, Configuring Routes, Using Request/Responses Objects	<b>CO1,C O2</b>
<b>IV</b>	<b>How React Works_</b> - Page Setup, React Elements, ReactDOM, React, components, <b>React with JSX-</b> React Elements as JSX, <b>Babel</b> , Recipes as JSX, React Fragments, Intro to webpack, <b>React State Management _</b> - Building Forms, <b>Incorporating Data_</b> - Requesting Data, <b>Virtualized Lists</b> - Creating a Fetch Hook, Creating a Fetch Component, Handling Multiple Requests, Memoizing Values, React Router.	<b>CO1, CO3</b>
<b>V</b>	<b>Understanding NoSQL and MongoDB:</b> Why NoSQL?, Understanding MongoDB, MongoDB Data Types; <b>Getting Started with MongoDB and Node.js:</b> Building the MongoDB Environment, Accessing MongoDB from the Shell Client, MongoDB Shell commands and methods, Adding the MongoDB Driver to Node.js , Connecting to MongoDB from Node.js	<b>CO1,C O4</b>

### Learning Resources

#### Text Books

1. Node.js, MongoDB and Angular Web Development by Brad Dayley, Brendan Dayley, Caleb Dayley, 2nd edition, Perason, ISBN-13: 978-0134655536, ISBN-10: 0134655532
2. Learning React Modern Patterns for Developing React Apps, 2<sup>nd</sup> Edition, Ooreilly, ISBN: 978-1-492-D5172-5

#### References

1. Pro MERN Stack: Full Stack Web App Development with Mongo, Express, React, and Node by Vasam Subramanian, Apress; 2nd ed. edition (13 May 2019), ISBN-10 : 1484243900, ISBN-13 : 978-1484243909
2. MongoDB, React, React Native Full-Stack Fundamentals and Beyond, by Eric Bush, Zaccheus Entertainment Publication, ISBN-10: 0997196688, ISBN-13 : 978-0997196689
3. Quick Start Guide: Build web applications with MongoDB, Express.js, React, and Node by Eddy Wilson Iriarte Koroliova, Packt Publishing, ISBN-10: 1787281086, ISBN-13: 978-1787281080
4. Beginning Node.js, Express & MongoDB Development, by Greg Lim (Author), ISBN-10 : 9811480281
5. Beginning Node.js, Basarat Syed, APress, ISBN-10: 9781484201886

#### e-Resources and other Digital Material

1. [www.w3schools.com](http://www.w3schools.com)
2. <https://www.javatpoint.com/mean-stack-tutorial>
3. <https://www.linode.com/docs/guides/mean-stack-tutorial/>