

MEAN Stack Syllabus

<u>Web Development Fundamentals</u>	<u>Advanced JavaScript</u>
<ul style="list-style-type: none"> • Internet & Web ka basic concept • Client-Server Architecture • HTTP / HTTPS Protocol • Web Browsers & Developer Tools • HTML5 Basics • CSS3 (Flexbox, Grid, Responsive Design) • JavaScript Basics (Variables, Data Types, Operators) 	<ul style="list-style-type: none"> • Functions & Scope • Closures • Callbacks • Promises & Async/Await • ES6+ Features (Arrow Functions, Destructuring, Modules) • DOM Manipulation • Event Handling • Error Handling
<u>Version Control (Git & GitHub)</u>	<u>Node.js Fundamentals</u>
<ul style="list-style-type: none"> • Git Installation & Setup • Basic Commands (clone, commit, push, pull) • Branching & Merging • GitHub Repository Management • Collaboration Workflow 	<ul style="list-style-type: none"> • Introduction to Node.js • Node.js Architecture (Event Loop) • NPM (Node Package Manager) • Core Modules (fs, http, path) • Creating Basic Server • File System Handling
<u>Express.js Framework</u>	<u>MongoDB Database</u>
<ul style="list-style-type: none"> • Introduction to Express.js • Routing (GET, POST, PUT, DELETE) • Middleware Concept • REST API Development • Request & Response Handling • Error Handling Middleware 	<ul style="list-style-type: none"> • Introduction to NoSQL • MongoDB Installation & Setup • CRUD Operations • Collections & Documents • MongoDB Queries • Indexing & Aggregation • Data Modeling
<u>Mongoose (ODM)</u>	<u>Angular Basics</u>
<ul style="list-style-type: none"> • Introduction to Mongoose • Schema & Models • Validation • CRUD with Mongoose • Relationships (Populate) 	<ul style="list-style-type: none"> • Introduction to Angular • Angular CLI Setup • Project Structure • Components & Modules • Data Binding • Directives (ngIf, ngFor) • Pipes
<u>Advanced Angular</u>	<u>Full Stack Integration</u>

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NEXTGEN

Computer Institute

<ul style="list-style-type: none">• Services & Dependency Injection• Routing & Navigation• Forms (Template-driven & Reactive)• HTTP Client (API Integration)• State Management Basics• Angular Lifecycle Hooks	<ul style="list-style-type: none">• Connecting Angular with Node.js Backend• REST API Integration• CRUD Full Stack Application• Authentication (JWT)• Authorization
<u>Authentication & Security</u>	<u>Testing</u>
<ul style="list-style-type: none">• User Authentication• JWT (JSON Web Token)• Password Hashing (bcrypt)• Role-Based Access• API Security Best Practices	<ul style="list-style-type: none">• Unit Testing Basics• API Testing (Postman)• Angular Testing Basics• Debugging Techniques
<u>Deployment & DevOps Basics</u>	<u>Project Work</u>
<ul style="list-style-type: none">• Hosting Backend (Node.js Server)• Frontend Deployment (Angular App)• Environment Variables• Build Process• CI/CD Basics	<ul style="list-style-type: none">• Mini Projects (CRUD Apps)• Full Stack Project (e.g., Blog / E-commerce)• Code Optimization• Performance Improvement• Final Project Deployment
<u>Soft Skills & Interview Preparation</u>	
<ul style="list-style-type: none">• Resume Building• GitHub Portfolio• Interview Questions (MEAN Stack)• Coding Practice• Problem Solving	

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