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| **FSMR4–MEAN stack (Mongo DB, Express. js, Angularjs, and Node. js)**  **Course Objectives**:  To implement the static, Dynamic webpages using HTML5, CSS3, Bootstrap.  To introduce Node.js,Express.js implementation for server side programming  Demonstrate database management with Mongo DB.  To experiment with single page application development using Angular and to use git version control system.  **Course Outcomes:**  On completion of the course, the students will be able to:  1. Build a custom website with HTML, CSS, and Bootstrap.  2. Develop the server – side implementation using Node.js,Express.js  3. To make use of database management with Mongo DB drivers for web development.  4. Design a Single Page Application using Angular and establish version control in github. | |
| **Unit-I 12 Periods** **Introduction**: Briefly Full stack web development, Designing MEAN stack Architecture, Differences b/w Canvas and SVG, web storage, Drag & Drop, Geolocation, Bootstrap-setup, Templates, Typography, Forms & Tables, Navbar, Carousel. | |
| **Unit-II 12 Periods**  **Part A:Node.js:-** : Getting started with Node, Environment setup, simple server, Modules, Node.js file system module, NPM, Events, Upload the file, Send an Email.  **Part B: Express.js:-** Introduction, Setup environment, Basic Routing, Middleware, Templating. | |
| **Unit-III 12 Periods**  **Mongo DB Drivers:**  Introduction, MongoDB Installation, Create database, insert, create collection, find, update, drop, CURD Operations, Creating UI, Form validation and user register, Password Encryption, login functionality. | |
| **Unit-IV 12 Periods**  **Part A: App development using Angular & AngularJS:** Getting Started with Angular, Differences b/w Angular & AngularJS, Components, Properties, Events, Data Binding, AngularJS MVC architecture AngularJS modules, AngularJS Directives, DOM.  **Part B: Git & Version control:** Getting Started with git, Working with a Local Repository, Working with Remote Repository. | |
| **Textbooks(s):** | 1. Northwood, Chris. The Full Stack Developer: Your Essential Guide to the Everyday Skills Expected of a Modern Full Stack Web Developer. Apress, 2018. 2. Node.js, MongoDB, and AngularJS Web Developmentby Brad Dayley Released June 2014 Publisher(s): Addison-Wesley Professional. |
| **References:** | Beginning MERN Stack: Build and Deploy a Full Stack MongoDB, Express, React, Node.js App Kindle Edition by [Greg Lim](https://www.amazon.in/Greg-Lim/e/B06XP6FHDK/ref=dp_byline_cont_ebooks_1) (Author).Ihrig CJ, Bretz A. Full stack JavaScript development with MEAN. Site Point; 2014 Dec 24. |
| **Website References:** | 1. www.w3schools.com 2. www.javatpoint.com 3. www.Tutorialpoint.com 4. git-scm.com 5. geeksforgeeks |
| **Micro Projects:** | 1. Develop a Bookstore application by using HTML5, CSS3, jQuery in Github 2. Develop a shopping cart application by using HTML5, CSS3, jQuery in Github 3. Design Single page application with different menu items using Angular. 4. Build a personal portfolio webpage using HTML5, CSS3, jQuery. 5. Develop a webpage to display solar system using HTML5, CSS3, jQuery 6. Develop Chess Game using HTML5, CSS, jQuery & Ajax |