FULL STACK WEB DEVELOPMENT (MERN STACK)

Technologies Cover in this Course: HTML , CSS ,JS , React JS , Dev Tools, Git and Github
Node JS, Express JS, MongoDB and
Project Deployment (With Real time live experience).

Course Overview: (120 + HOURS) - 16 Projects

1. **Basics : (2 hrs)**
   i. Internet Fundamentals (10-15 mins)
   ii. History/Evolution of Technologies and Why MERN is good choice? (30 mins)
   iii. Network Requests and Headers (20-30 mins)
   iv. Port Numbers and How Domains and DNS Works (20 mins)
   v. What Exactly the role of Full Stack in LIVE WORK ENVIRONMENT (30 mins)
2. **Front-End (10 hrs)**
   a. HTML and CSS - (BASIC)
      i. What is HTML? (10 mins)
      ii. Structure and First HTML Page (10 mins)
      iii. Tags in HTML (anchor, text, images and videos) (30-40 mins)
      iv. Elements in HTML (Head and Body) (20 mins)
      v. Divs, Forms and Tables (2 hrs)
      vi. PROJECT-1 (Simple page with topics covered) (1 hr)
      vii. What is CSS ? (15 mins)
      viii. CSS Selectors and Different types of CSS (15-20 mins)
      ix. CSS Properties and ID based selection (2 hrs)
      x. CSS to Apply Multiple tags (20 mins)
      xi. CSS Flex-box (30-40 mins)
      xii. CSS Position (30-40 mins)
      xiii. Project-2 (Simple page to combine CSS and HTML) (1hr)
      xiv. CSS Grid (30-40 mins)
      xv. Project -3 (Google Home Page) (1 hr)
      xvi. Project -4 (Product Page) (1hr)
      xvii. Project -5 (Survey Form) (1 hr)

   b. VERSION CONTROL SYSTEM (GIT AND GITHUB) (5hr)
      i. What is GIT? Installation of GIT (20-30 mins)
      ii. What is GITHUB ? GIT vs GITHUB (20-30 mins)
      iii. Creating repository, Pushing code and cloning (40 mins)
      iv. Commit, undoing and Working with Local Repository (40 mins)
      v. Branching (40 mins)
      vi. Merging code with someone and contributions (1 hr)
      vii. Project – 6 (Simple Page with HTML, CSS and push to Github) (1 hr)

c. HTML and CSS - (ADVANCED) (12 hrs)

i. Meta Tags and conditional comments (20 mins)
ii. HTML Entities (30 mins)
iii. IFrames (20-30 mins)
iv. CSS Specificity , Box Model (50 mins)
v. Pseudo CSS Selectors (40 mins)
vi. CSS Variables and Advanced CSS Selectors (1 hr)
vii. CSS Media Queries (1 hr)
viii. CSS Animations (1 hr)
ix. BOOTSTRAP (3-4 hrs)
x. Advanced Live concepts in MARKET (30-40 mins)
xi. Project -7 (Responsive Page with animations) (2 hr)

d. JAVASCRIPT - (BASIC) (15 hrs)

i. What is JavaScript? And Developer Tools (20 mins)
ii. First JavaScript (Hello World) (5 mins)
iii. Variables and Scope, Hoisting (20-30 mins)
iv. Data Types and typeof (30-40 mins)
v. Math Operators (40 mins)
vi. Functions (1 hr)
vii. Conditions(if else, switch) (40 mins)
viii. Loops(for, while and for each) (50 mins)
ix. Break vs continue vs return (30 mins)
x. Arrays , stacks and other data structures (1 ½ hr)
xi. Objects (40-50 mins)
xii. Variable shadowing and scoping (40 mins)
xiii. DOCUMENT OBJECT MODEL(DOM)- basics (1 hr)
xiv. querySelector and querySelectorAll (30 mins)
xv. EventListeners (40 mins)
xvi. Dynamic creation and changing HTML and CSS Elements (30 mins)
xvii. ES6+ Features (30-40 mins)
xviii. Arrow Functions , classes and constructors (1 hr)
xix. Object Destructuring , spread vs Rest Operator (1 hr)
xx. New Array Methods (1 hr)
xxi. Template Literals (1 hr)
xxii. Project -8 (Basic calculator with JS) (1 ½ hr)
xxiii. Project -9 (To Do App) (1 ½ hr)

e. JAVASCRIPT – (ADVANCED) –(8 hrs)

i. JS Callbacks and Asynchronous (1 hr)
ii. What are Promises? (20 mins)
iii. .then, catch, nesting promises and nesting catch (30 mins)
iv. Aync-await (40 mins)
v. Fetch API (1 hr)
vi. ErrorHandling, Promise.all and Promise.allsettled (1 hr)

vii. ProtoTypal Inheritance (1 hr)
viii. Advanced DOM (1 hr)
ix. Object Handling (1 hr)
x. JSON Parsing and Strict Mode (30 mins)

f. REACT JS – (BASICS) - (13 hrs)

i. What is NPM? What is React JS? Installation and modules Explanation (30-40 mins)
ii. First program and code understanding (20 mins)
iii. JSX, VirtualDOM, ReactDOM (30 mins)
iv. Forms, keys, Lists (1 ½ hr)
v. Rendering Elements and conditional Rendering (1 hr)
vi. Components (pure, functional and Lifecycle) (30-40 mins)
vii. Class vs functional Components (1 ½ hr)
viii. Presentational vs container components (30-40 mins)
ix. Props, Props Rendering and Unidirectional Flow (1 hr)
x. States and states vs props (1 hr)
xi. State flow and Lifecycle (1 hr)
xii. Hooks - Introduction (this Keyword and HOC) (30 mins)
xiii. Project – 10 (Create a to do App using React JS) (1 ½ hr)
xiv. Project – 11 (create a Quiz App using React JS) (1 ½ hr)

g. REACT JS – (ADVANCED) – (7 hrs)

i. Advanced Hooks (useState and useEffect and other) (1 ½ hr)
ii. React Router and types (1 hr)
iii. Context in React and Fragments (30 mins)
iv. State Machines (1 ½ hr)
v. Compound Components (1 hr)
vi. Performance building (30 mins)
vii. Desin Patterns (1 hr)
viii. useSWR (1 hr)

h. FULL FRONTEND PROJECT PORTFOLIO (3 hr)

i. BASIC FRONTEND TESTING (playWright End to End testing) (1 hr)

3. Back-End

a) INTRODUCTION TO BACKEND (15 hr)

i. Linux Fundamentals – Linux Commands (30 mins)
ii. Shell Scripting (30 mins)
iii. Bash and Package Managers (20-30 mins)
iv. Introduction to NodeJS, Installation and REPL (40 mins)
v. Callbacks and Asynchronous (1 hr)
vi. Node Js Modules, Local Module(Common JS) (1 ½ hr)
vii. ES Modules (1 ½ hr)
viii. Assert Module (assert (), asset.deepStrictEqual(),equal(),match(),notDeepEqual() (1 hr)
ix. Buffer Module() (1 hr)
x. Console Module() (1 hr)
xi. Node JS HTTP Module (2 hr)
xii. Project 12- URL Shortner (2 hr)
xiii. Project 13 – CRUD TO DO REST API Project (2 hr)

b) ADVANCED NODE JS (10 -15 hrs)

i. Node JS Internals (30-40 mins)
ii. ThreadPool (40-50 mins)
iii. Event Loop (1 hr)
iv. Node Js OS Module (1 hr)
v. Stream Module (1 hr)
vi. TLS/SSL Module (2 hr)
vii. Express JS Requests (30-40 mins)
viii. Express JS Response (30-40 mins)
ix. Express JS Router (30-40 mins)
x. JWT Authentication (2 hrs)
xi. Project 14 – Simple Application Using JWT Authentication (3 hrs)

4. MongoDB (5 hr)

WORKING WITH MONGODB

i. What is MongoDB? Set up Environment (20-30 mins)
ii. Data Modelling and Create Database (40 mins)
iii. Create in CRUD (50 mins)
iv. Read in CRUD (50 mins)
v. Update in CRUD (50 mins)
vi. Delete in CRUD (50 mins)

5. Project Deployment (5 hr)

i. Project 15 – Building a Full Stack Project 1
ii. Project 16 - Building a fullStack Project 2

6. Interview Guidance (2 hr)

i. Interview Questions
ii. Building portfolio

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