



Deccan Education Society's

FERGUSSON COLLEGE (AUTONOMOUS), PUNE

under: Savitribai Phule Pune University,

Re-Accreditation by: NAAC "A" Grade with CGPA 3.62

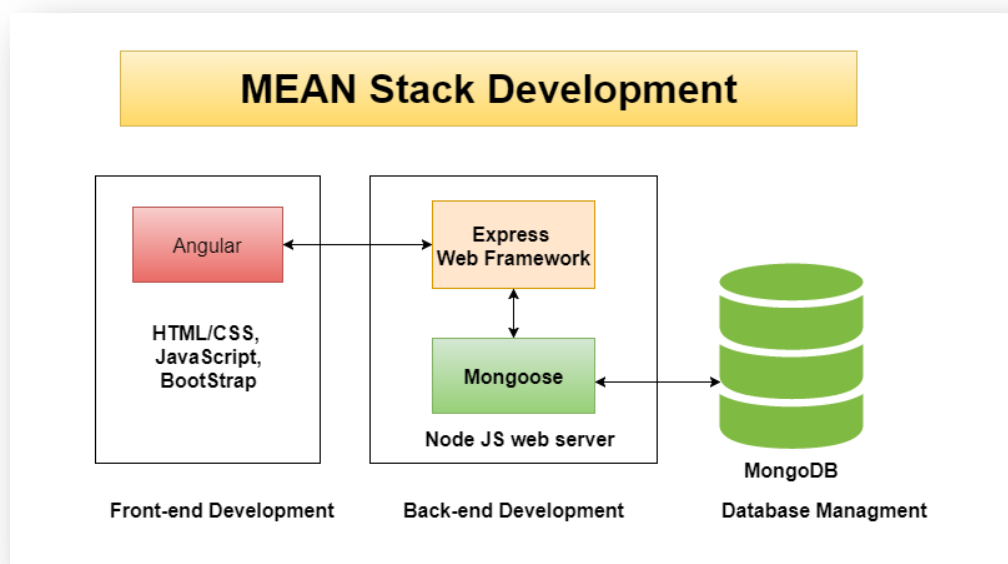
Awarded: College of Excellence by (UGC), DBT STAR College, DST-FIST supported departments

Certificate Course in "MEAN Stack Web Development"

MEAN Stack Overview:

MEAN is an acronym for MongoDB, ExpressJS, Angular and Node.js.

MEAN Stack web development is a structured learning path recommended by leading industry experts and ensures your mastery of full MEAN stack development.



MongoDB is a schemaless NoSQL database system. MongoDB saves data in binary JSON format which makes it easier to pass data between client and server.

ExpressJS is a lightweight framework used to build web applications in Node. It provides a number of robust features for building single and multi-page web application. ExpressJS is inspired by the popular Ruby framework, Sinatra.

Angular 6 is a TypeScript based open-source front-end web application platform led by the Angular Team at Google. It gives an extraordinarily expressive, readable and fast way to develop rich front ends for websites.

Node.js is a server side JavaScript execution environment. It is a platform built on Google Chrome's V8 JavaScript runtime. It helps in building highly scalable and concurrent applications rapidly.

Course Objective:

The overall aim of the course is to enable participants to confidently build different types of application using the MEAN stack.

The course is divided into four modules, **MongoDB, ExpressJS, Angular, and Node.js**.

Each module focuses on a different goal. The four modules work together building a full application, with an overall outcome of showing how to **architect and build complete MEAN applications**.

Course Details:

Title	Certificate Course in MEAN Stack Web Development
Duration	14 Weeks (Saturday Only)
Course Commencement Date	Will be notified soon
Timings	9:00 am – 3:30 pm
Venue	Fergusson College
Actual Contact Hours Classroom Training (with hands-on)	60
Project Based Learning Hours	18
Fee Structure	20,000/- per Participant (Inclusive of GST)
Eligibility	Open for all Students / Individuals / Professionals with basic knowledge of HTML5, CSS3 and JavaScript
Intake	30 Participants

Outcome:

By the end of the course, participants will be able:

- To set up a web-server using Node.js and ExpressJS, to listen for request and return response.
- To design **NoSQL** databases and work with MongoDB from the command line and from Node.js and ExpressJS.
- To design and build robust **REST APIs** using Node.js, ExpressJS and MongoDB, following industry best practices.
- To build high quality Angular **single page applications** (SPAs), following industry best practices.
- To build full stack applications in JavaScript using the MEAN technologies.

Course Contents:

Introduction to MEAN	
<ul style="list-style-type: none"> ❖ Overview to Web UI Technologies ❖ Revisiting HTML, CSS & JavaScript ❖ HTML DOM ❖ Getting started with MEAN ❖ Architecture of MEAN ❖ Scope of MEAN ❖ Benefits of Using MEAN ❖ Application of MEAN ❖ The Four Building Components <ul style="list-style-type: none"> ▪ An Insight into Mongo DB ▪ An Insight into Express ▪ An Insight into Angular ▪ An Insight into Node.js ❖ Collaboration of the Four technologies ❖ Outcome and Deployment 	
MongoDB	Angular
<ul style="list-style-type: none"> ❖ What is MongoDB ❖ MongoDB History ❖ MongoDB Features ❖ No SQL Databases ❖ Advantages over RDBMS ❖ MongoDB Data Types ❖ Install MongoDB ❖ MongoDB Shell ❖ MongoDB Data Modeling ❖ Database Operations <ul style="list-style-type: none"> ○ Create Database ○ Drop Database ❖ Collection <ul style="list-style-type: none"> ○ Create Collection ○ Drop Collection ❖ CRUD: Documents <ul style="list-style-type: none"> ○ Insert Documents ○ Update Documents ○ Delete Documents ○ Query Documents ❖ User Authentication ❖ Connectivity <ul style="list-style-type: none"> ○ Python MongoDB ❖ Technical Assessment 	<ul style="list-style-type: none"> ❖ What is Angular ❖ MVC ❖ Introduction to TypeScript ❖ TypeScript Basics ❖ Introduction to Visual Studio Code ❖ Installing Angular 6.0 ❖ Introduction to Angular CLI ❖ Understanding “npm” tool ❖ First App ❖ Managing Dependencies (package.json) ❖ Expressions ❖ Pipes ❖ Directives ❖ Components ❖ Data Binding ❖ Modules ❖ Dependency Injection ❖ Services ❖ Routing ❖ Forms& Form Validation ❖ Technical Assessment

ExpressJS	Node.js
<ul style="list-style-type: none"> ❖ Introduction ❖ Environment Setup ❖ Basic Program ❖ Routing ❖ URL Binding ❖ Middleware ❖ Static Files ❖ Post Data ❖ Database ❖ Cookies ❖ Sessions ❖ Error Handling ❖ RESTful API ❖ Debugging ❖ Technical Assessment 	<ul style="list-style-type: none"> ❖ What is Node.js ❖ Environment Setup ❖ First Application ❖ REPL Terminal ❖ Package Manager (NPM) ❖ Callbacks Concept ❖ Event Loop ❖ Event Emitter ❖ Buffers ❖ Streams ❖ File System ❖ Global Objects ❖ Utility Modules ❖ Web Module ❖ Packaging ❖ Overview of Unit-testing framework for Angular and Node.js ❖ Technical Assessment

Technical Assessment Details:

After each module a technical assessment would be conducted as follows:

Module	Assessment Type	Duration	Marks
Angular	Objective	45 Minutes	40
MongoDB	Objective	45 Minutes	40
Node.js	Objective	45 Minutes	40
Express	Objective	45 Minutes	40

Final Project:

To develop a **MEAN stack & RESTful API** based Web Application.

Description	Assessment Type	Duration	Marks
Project	Practical Implementation	Full Day	60

Note:

1. Grades would be given based on **Average Marks of Technical Assessments + Project Marks.**

All technical assessments and project activity is mandatory.

Marks	Grade
80 – 100	O: Outstanding
70-79	A+: Excellent
60-69	A: Very Good
50-59	B+ : Good
< 50	B: Satisfactory

2. **Certificate** would be issued to participants after successful course completion. Certificate will not be issued in case of failing to complete any technical & project assessment.