**NodeJS Training Course Outline**

**DURATION:** 4 Days

This training talk to JavaScript developers how to create server-side applications with JavaScript and Node.js, culminating with an MVC application built on the Express framework that queries databases and calls back-end web services.

**NODE.JS TRAINING OBJECTIVES**

* Learn why server-side JavaScript is useful
* Install Node.js
* Create basic web applications with Node.js
* Build an HTTP server using the core modules in Node.js
* Use stream I/O to efficiently serve the web pages
* Create modules to organize the server
* Test the reliability of the application with unit tests
* Convert the application to an MVC framework using Express
* Interface to a MongoDB database and a web service

**NODE.JS TRAINING PREREQUISITES**

Attendees should have a fair knowledge of JavaScript as well as basic HTML and CSS.

Attendees should have a working knowledge of Angular

**SOFTWARE NEEDED FOR EACH PC:**

* A recent version of Google Chrome or Mozilla Firefox
* A local installation of Node.js
* MongoDB Installer / Access to Mongo Cloud
* Admin privileges to install additional NPM features
* A JavaScript development IDE of your choice (Visual Studio Code)
* Open internet connection

**NODE.JS TRAINING OUTLINE**

**Day 01:**

* JavaScript Objects, Functions, and Events
  + How to use objects to work with data
  + How to use functions
  + How to handle events
* Closures & Callbacks
  + Introduction to closures
  + How to use closures
  + How to use callbacks
* NodeJS : Introduction
  + Foundation
    - The Node.js Platform
    - Installing Node.js
    - Using Node.js to execute scripts
* Node Projects
  + The Node Package Manager
  + Creating a project
  + The package.json configuration file
  + Global vs. local package installation
  + Configuring Node for JavaScript

**Day 02 :**

* HTTP
  + The HTTP protocol
  + Building an HTTP server
  + Rendering a response
  + Processing query strings
* File System
  + Synchronous vs. asynchronous I/O
  + Path and directory operations
  + \_\_dirname and \_\_filename
  + Asynchronous file reads and writes
* Modules
  + Modularization
  + Defining modules with exports
  + Modules are singletons
  + Creating a package
  + Module scope and construction

**Task : CLI Application – Notes App**

**Day 03 :**

* Express
  + The model-view-controller (MVC) pattern
  + Building a front-end controller
  + Defining routes
  + Using REST – GET/POST/PATCH/DELETE
  + Adding middleware
  + Request / Response
* Data Sources
  + How Node.js connects to databases
  + RDBMS databases and NoSQL databases
  + Connecting to NoSQL databases (MongoDB)
  + Performing CRUD operations
  + Building client requests to web services

**Task : CRUD REST APIs for Todo App**

**Day 04:**

* Creating Views :
  + View Engine (Handlebar)
* NodeJS Securities
  + Using JWT for API Authentication
* Unit Testing :
  + Using Mocha
  + Using Chai
* Deploy Node App on Server/Cloud