



Course Name: Full Stack Web Development Training Program

Course Overview

The Full Stack Web Development Program is a comprehensive course designed to provide participants with the skills and knowledge required to develop robust, scalable, and dynamic web applications. Covering both front-end and back-end technologies, this program includes foundational concepts such as HTML, CSS, JavaScript, and advanced tools like React, Node.js, Express.js, and SQL for database management. Learners will master the entire development lifecycle, from designing user interfaces to deploying fully functional applications. Real-world projects and hands-on labs ensure practical experience, preparing participants for a successful career as full-stack web developers.

Course Type

Intermediate Level

Ideal for those with basic computer skills or programming knowledge.

Course Objectives

- To understand the principles of full-stack web development.
- To develop front-end and back-end web applications using modern frameworks and libraries.
- To learn how to manage and query databases using SQL.
- To master server-side programming and RESTful API creation.
- To deploy and maintain web applications effectively.
- To work on real-world projects and build a professional portfolio.

What You'll Learn?

- Building user-friendly interfaces with HTML, CSS, and JavaScript.
- Developing dynamic web applications using React and integrating APIs.
- Creating secure and efficient server-side logic with Node.js and Express.js.
- Managing relational databases with SQL for structured data storage.
- Deploying and hosting applications on platforms like AWS or Heroku.
- Understanding version control with Git and GitHub.
- Debugging, testing, and optimizing web applications for performance.



Duration

120–140 hours, including lectures, coding labs, and capstone projects.

Requirements

- A computer with internet access.
- Code editor (e.g., Visual Studio Code) and modern web browsers installed.

Pre-requisites

- Basic understanding of how websites work.
- Familiarity with general programming concepts is helpful but not mandatory.

Target Audience

- Aspiring web developers and programmers.
- Professionals seeking to enhance their skillset with full-stack capabilities.
- Students aiming for a career in web or software development.
- Entrepreneurs wanting to build their own web applications.

Curriculum

Module 1: Introduction to Web Development

- 1.1 What is Full Stack Development?
- 1.2 Overview of Web Technologies
- 1.3 Setting Up the Development Environment

Module 2: Front-End Development Basics

- 2.1 HTML Fundamentals
 - Structure of an HTML Document
 - Semantic Tags and Forms
 - Multimedia Integration
- 2.2 CSS for Styling
 - Selectors, Properties, and Box Model
 - Flexbox and Grid Layouts
 - Responsive Design with Media Queries
- 2.3 JavaScript Essentials
 - Syntax, Variables, and Data Types
 - DOM Manipulation and Event Handling
 - ES6+ Features (Arrow Functions, Promises)

Module 3: Advanced Front-End Development

- 3.1 React Basics
 - Components and JSX
 - Props, State, and Lifecycle Methods
 - React Router for Single Page Applications
- 3.2 Front-End Project
 - Building a Dynamic Web Application Using React

Module 4: Back-End Development Basics

4.1 Introduction to Node.js

- Setting Up a Node.js Server
- Using npm and Installing Packages

4.2 Working with Express.js

- Creating RESTful APIs
- Middleware and Routing

Module 5: Database Management with SQL

5.1 Relational Database Concepts

- Tables, Relationships, and Keys
- Normalization and Best Practices

5.2 SQL Queries

- CRUD Operations
- Joins, Subqueries, and Aggregate Functions

5.3 Integrating SQL with Back-End

- Connecting a Node.js Application to a SQL Database
- Querying and Managing Data Programmatically

Module 6: Advanced Back-End Development

6.1 Authentication and Authorization

- User Authentication with JWT
- Role-Based Access Control

6.2 Building Scalable Applications

- MVC Architecture
- Using WebSockets for Real-Time Communication

Module 7: Deployment and Maintenance

7.1 Deployment Basics

- Hosting on Platforms Like AWS, Heroku, or Netlify
- Configuring Domain Names and SSL Certificates

7.2 Monitoring and Debugging

- Logging Errors and Performance Metrics
- Debugging Techniques

Module 8: Version Control and Collaboration

8.1 Git and GitHub Basics

- Creating Repositories and Branches
- Collaborating on Projects with Git

8.2 Team Collaboration Practices

- Pull Requests and Code Reviews
- Resolving Merge Conflicts

Module 9: Capstone Projects

9.1 E-Commerce Application

- Front-End with React and Back-End with Node.js
- SQL Database Integration

9.2 Social Media Platform

- User Authentication, Profile Management, and Posting System

9.3 Task Management System

- Real-Time Collaboration and Task Tracking