WEBCONVOY ACADEMY
DIGITAL MARKETING INSTITUTE

#1 IT INSTITUTE

WEB DESIGN | DATA ANALYSIS
FRONT END | UI/UX | BACK END
ANDROID / IOS | WEBSITE DESIGNING
SOFTWARE TESTING | C/C++/JAVA/PYTHON
ALMS | DIGITAL MARKETING

MERN STACK DEVELOPMENT

Course Curriculum

3, 4 months Online & Offline

The Back-End Development course at WebConvoy Academy is designed to train students in building powerful, scalable, and secure server-side applications using modern technologies. The course covers essential topics such as Node.js, Express, MongoDB, MySQL, and RPC development, ensuring learners gain hands-on experience in building robust APIs, microservices, and backend systems.

The course integrates essential theory with hands-on backend projects to demonstrate real-world server and application logic.
Students also complete a 2-month internship project to gain live, practical experience in backend environments.

WebConvoy Academy empowers students to develop a professional backend portfolio and connect with top tech companies. With one-on-one mentorship, resume support, interview prep, and career guidance, we prepare learners for roles such as Node.Js Back-End Developer, Server-Side Engineer, and API Developer.

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WHY LEARN BACK END DEVELOPMENT

Front-End Development is a vital skill focused on building visually appealing, fast, and user-friendly websites and applications. It is not just about design—it's about bringing design to life through code. Front-end developers use HTML, CSS, JavaScript, and frameworks like React to create interactive and responsive digital platforms. Front-end development is a rapidly growing high-demand field that's perfect for those who enjoy coding, creativity, and building real-world web solutions.

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CAREER IN BACK END DEVELOPMENT

A career in Front-End Development opens doors to dynamic roles in today's tech industry. As a front-end developer, you'll design and build visually stunning websites and applications, skilled front-end developers are increasingly in demand. Professionals can pursue roles such as Front-End Developer, UI Developer, Web Developer in startups, agencies, or large tech firms, using tools like HTML, CSS, JavaScript, and frameworks like React. With the rise of remote work and freelancing, front-end skills offer flexible opportunities to work on impactful projects from anywhere, combining creative interface and overall web experience from concept to deployment.

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At **WebConvoy Academy**, we believe that great outcomes start with great planning. We follow a structured approach that combines strategic guidance, and training. We are trusted by **students both technically and professionally.**

Back End Course Overview

Comprehensive Program Structure
Build powerful, scalable server-side Apps, with our Back-End course.
Internship Program - 2 Months (Required)
Gain hands-on experience with a 2 Months (required) project internship.
Online Class & Offline Class
Flexible learning both online and offline classes available.
Portfolio Development
Build a strong Back-End portfolio with real-world projects and expert mentorship.
1:1 Mentorship & Doubt Support
Personalized 1:1 mentorship and instant doubt support throughout your learning journey.

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TOPIC WISE CURRICULUM

KEY FEATURES

WEEKLY DOUBT SESSION

PERSONAL MENTORSHIP

PROFESSIONAL DEVELOPMENT

1 MONTH MOCK INTERVIEW & RESUME PREPARATION

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MERN Stack Development

3 Months Courses Fast Paced
1st Month, Front-End Development with React.js

Week 1
React Basics
1. What is React & Why use it?
2. JSX Syntax & Components
3. Props & Functional Components

Week 2
Routing & Navigation
1. React Router Setup
2. Dynamic Routing & Params
3. SPA Concepts

Week 3
State Management with Redux/Context API
1. Introduction to Redux: Actions, Reducers, Store
2. Using Context API as an alternative
3. Connecting Redux with React Components

Week 4
Introduction to Node.js
1. Node.js Architecture
2. Npm & Modules
3. Creating HTTP Servers

2nd Month Back-End with Node.js & Express.js

Week 5
REST APIs with Express.js
1. Express Basics & Routing
2. RESTful API Structure
3. Route Parameters & Query Strings

Week 6
Middleware & Authentication
1. Custom & Built-in Middleware
2. JWT Authentication
3. Error Handling Techniques

Week 7
Additional Features
1. File Upload with Multer
2. Logging with Morgan
3. Building Scalable APIs

Week 8
Additional Features
1. File Upload with Multer
2. Logging with Morgan
3. Building Scalable APIs

3rd Month MongoDB & Full-Stack Integration

Week 9
MongoDB Fundamentals
1. NoSQL Concepts
2. MongoDB Installation & CRUD Operations
3. Connecting with Mongoose

Week 10
Full-Stack Integration
1. Connecting MongoDB with Express
2. Fetching & Displaying Data in React
3. Full-Stack API Interaction

Week 11
Deployment
1. Heroku Web Deploy
2. Deploying with Vercel/Render
3. Environment Variables & Security

Week 12
Final Project & Demo
1. Build Complete Project
2. Code Review Sessions
3. Presentation & Feedback

6 Months Courses (In-Depth)
1st Month Web Development Fundamentals

Week 1
HTML & CSS
1. Semantic HTML
2. Flexbox, Grid Layout
3. Responsive Design

Week 2
Advanced CSS
1. Animations & Transitions
2. Media Queries & Mobile Design
3. CSS Preprocessors (SCSS)

Week 3
JavaScript Basics
1. Variables, Loops, Functions
2. Arrays & Objects
3. ES6+ Features

Week 4
DOM & Asynchronous JS
1. DOM Manipulation
2. Event Listeners
3. Async: JS, Callbacks, Promises, Fetch/Axios

2nd Month React.js (Front-End Mastery)

Week 5
React Fundamentals
1. Functional & Class Components
2. Props, State, Events
3. Component Composition

Week 6
Advanced React
1. useEffect, useRef, useReducer
2. Conditional Rendering
3. Code Splitting & Lazy Loading

Week 7
React Router & SPA
1. React Router v6
2. Nested Routes
3. Protected Routes

Week 8
Redux for Scalable State
1. Redux Toolkit
2. Asynchronous Actions (Thunk)
3. Devtools Debugging

3rd Month Node.js & Express.js (Back-End Mastery)

Week 9
Node.js Core Concepts
1. Modules, Buffers, Streams
2. Creating API with Native HTTP Module
3. Working with Files

Week 10
Express Framework
1. Express Routing
2. Middleware Chaining
3. Error & Exception Handling

Week 11
Secure API Development
1. JWT Authentication
2. Role-Based Access Control
3. Rate Limiting & CORS

Week 12
Production-Ready API
1. File Uploads (Multer)
2. Structured Logging (Winston)
3. Input Validation (Joi)

4th Month MongoDB & Data Layer

Week 13
MySQL & MongoDB Basics
1. Understanding Document Structure
2. CRUD Operations in Shell & Compass
3. Schema Design

Week 14
MongoDB Advanced
1. Aggregation Pipelines
2. Indexing & Performance Optimization
3. Data Relationships (Embedding vs Referencing)

Week 15
Mongoose ODM
1. Creating Schemas & Models
2. Validations & Hooks
3. Virtuals & Population

Week 16
Full Data Layer Integration
1. Connecting API to Express
2. Building Complete Queries
3. Implementing Business Logic

5th Month Full-Stack Projects & Advanced Concepts

Week 17
Real-Time Features
1. Websockets & Socket.io
2. Real-Time Notifications or Chat App

Week 18
External Integrations
1. Payments (Stripe, Razorpay)
2. Social Login (Google/Facebook)
3. Third-Party APIs (REST/GraphQL)

Week 19
Testing
1. Unit Testing with Jest
2. Integration Testing with Supertest
3. E2E Testing with Cypress

Week 20
Testing
1. Unit Testing with Jest
2. Integration Testing with Supertest
3. E2E Testing with Cypress

Week 18
Deployment & DevOps
1. CI/CD Concepts
2. Deploying to Heroku, AWS, or Vercel
3. Docker Basics & Containerization

6th Month Capstone Project & Portfolio Building

Week 21-24
Final Project Development
1. Choose from eCommerce, Social Media, SaaS, Job Portal
2. Team Collaboration & Git Workflows
3. Agile Sprints & Review Cycles

Week 25
Performance & Optimization
1. Code Splitting & Lazy Loading
2. Lighthouse & PageSpeed Improvements
3. SEO & Accessibility

Week 25
Deployment & Portfolio
1. Live Demo & GitHub Portfolio
2. Resume Building & Interview Prep
3. Certification & Course Completion