**Master Program in Full Stack Web Development**

**Month 1: Frontend Development**

Week 1-2: HTML, CSS, and JavaScript Basics

* Introduction to HTML5 and semantic markup
* Styling with CSS3, Flexbox, and Grid
* JavaScript fundamentals and DOM manipulation

Week 3-4: Frontend Frameworks - React.js

* React.js basics and component-based architecture
* State and props in React
* Handling forms and events in React

Week 5-6: Frontend Development Tools and Responsive Design

* Version control with Git and GitHub
* Introduction to npm and package management
* Responsive design principles and media queries
* Building responsive web pages

**Month 2: Backend Development**

Week 1-2: Server-Side Scripting with Node.js

* Introduction to Node.js and Express.js
* Building RESTful APIs with Express
* Handling middleware and routing

Week 3-4: Database Basics and MongoDB

* Introduction to databases (SQL and NoSQL)
* MongoDB basics and CRUD operations
* Connecting Node.js and Express with MongoDB

Week 5-6: Backend Authentication and Authorization

* User authentication using JWT
* Role-based access control
* Implementing secure password hashing

**Month 3: Full Stack Development and Project Work**

Week 1-2: Integration of Frontend and Backend

* Connecting React.js frontend with Node.js backend
* Handling API requests and responses
* Testing and debugging full-stack applications

Week 3-4: State Management and Advanced Frontend Topics

* State management in React (Redux)
* Advanced topics in frontend development (e.g., hooks, context)

Week 5-6: Final Project Work

* Participants work on a comprehensive full-stack project
* Project documentation and presentation

**Month 4: Deployment, DevOps, and Advanced Topics**

Week 1-2: Deployment and Continuous Integration

* Deploying applications on cloud platforms (e.g., Heroku, AWS)
* Implementing CI/CD pipelines with tools like Jenkins or GitHub Actions

Week 3-4: Advanced Backend Topics

* WebSocket communication
* Serverless computing and functions
* Performance optimization and caching strategies

Week 5-6: Advanced Frontend Topics and Final Review

* Progressive Web Apps (PWAs)
* Accessibility and performance optimization
* Review of key concepts and final preparation for interviews or certifications