



ASPIREQ
Freedom meets aspirations

Full Stack Development Course

Syllabus

Module 1

Introduction to Programming with Java

Understand the basics of Java programming and its setup.

- **Core JAVA**

- History and features of Java
- Setting up the Java Development Kit (JDK)
- Writing your first Java program
- Understanding the Java Virtual Machine (JVM)
- Data types and variables
- Operators and expressions
- Control flow statements (if-else, switch-case)
- Loops (for, while, do-while)

AI Module 2

AI-Driven Full Stack Developer

How to use AI (ChatGPT, Microsoft copilot & deepseek) to solve business problems

- **AI in Excel**

- Data Analysis and Insights
 - Analyse Data
 - Power Query
 - Forecasting
- Data Types
- Dynamic Array Functions
- Natural Language Queries
- Insert Data from Pictures

- **AI in PowerPoint**

- Data Analysis and Insights
 - Design Ideas
 - Smart Formatting
- Content Generation

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- Visual Enhancements
- Data Visualization
- AI-Powered Presentation Makers

- **AI in Programming**

- How To Use AI To Learn For Developers
- AI-Powered Code Generation and Debugging
- AI Prompts for Enhanced User Interfaces (front end Designs)
- Prompts For Learning To Code
- AI Prompting Practice
- AI-Powered Frameworks and Libraries
- AI Prompting CheatSheets

Module 3

HTML, CSS, and JavaScript

Learn the essential tools for front-end development.

- **Introduction to HTML**

- Basic HTML tags and structure
- Form Controls
- Image Controls
- Button Controls
- HTML5 updates

- **Introduction to CSS**

- Borders and Backgrounds

- Text Effects and Fonts
- Transforms and Transitions
- Animations in CSS
- Multiple columns in CSS
- User Interfaces with CSS
- Flexbox and Grid layout
- Responsive design with media queries
- **Introduction to JavaScript**
 - Variables, data types, and operators
 - Functions and objects in JavaScript
 - DOM Manipulation
 - Asynchronous JavaScript
 - Debugging and Error Handling
 - Web APIs in JavaScript

Module 4

Frontend Development with React

Understand the core concepts of React and build web apps.

Topics:

- **- Frontend Development with React**
 - What is React and why use it?

- Setting up the development environment
- Creating a new React project
- Understanding JSX
- Components and props
- State and lifecycle
- Handling events
- Conditional rendering
- Lists and keys
- Context API
- Refs and the DOM
- Higher-order components
- React Router for navigation
- Hooks (useState, useEffect, etc.)

Module 5

Object-Oriented Programming

Master OOP concepts like inheritance, polymorphism, and abstraction.

Topics:

- - **Object-Oriented Programming**

- Classes and objects
- Constructors
- Inheritance
- Polymorphism
- Encapsulation
- Abstraction
- Interfaces
- Abstract classes
- Inner classes
- Packages and access modifiers

Module 6

Exception Handling and Collections

Master Java's exception handling and collections framework.

Topics:

- - **Exception handling and the collections framework.**
 - Types of exceptions
 - Try-catch block
 - Finally block

- Throw and throws keyword
- Custom exceptions
- List, Set, and Map interfaces
- ArrayList, LinkedList, HashSet, TreeSet, HashMap, TreeMap
- Iterators and for-each loop

Module 7

Full Stack Application Development

Combine React and Java skills to build full-stack apps.

Topics:

- **- Building Full-Stack Applications**
 - Setting up Spring Boot Project
 - Creating RESTful APIs with Spring Boot
 - Connecting React frontend with Java backend using Axios or Fetch API
 - Handling CORS issues
 - CRUD operations with Spring Boot
 - User authentication and authorization
 - Building a full-stack application
 - Deployment of Java and React applications
 - CI/CD pipelines
 - Unit testing in Java (JUnit)

- Testing React components (Jest, React Testing Library)
- Debugging techniques for full-stack applications

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