
Module 1: Software Engineering Foundations

- ⇒ Programming Fundamentals
- ⇒ Core Java & Advanced Java
- ⇒ OOP Principles
- ⇒ Collections Framework
- ⇒ Exception Handling
- ⇒ Multithreading
- ⇒ JVM Architecture & Modern Java 8/11/17/21/25 Features

Module 2: Data Structures & Algorithmic Thinking

- ⇒ Data Structures
- ⇒ Algorithms
- ⇒ Problem Solving Techniques
- ⇒ Coding Patterns
- ⇒ Time & Space Complexity
- ⇒ Interview-Oriented DSA

Module 3: Database Engineering

- ⇒ SQL & Relational Databases
- ⇒ MySQL & PostgreSQL
- ⇒ Database Design & Optimization
- ⇒ MongoDB & NoSQL
- ⇒ Redis Caching

Module 4: Enterprise Backend Development

- ⇒ Spring Framework
- ⇒ Spring Boot
- ⇒ RESTful API Development
- ⇒ Spring Data JPA
- ⇒ Spring Security & JWT
- ⇒ API Documentation & Testing

Module 5: Distributed Systems & Microservices

- ⇒ Microservices Architecture
- ⇒ Service Discovery
- ⇒ API Gateway
- ⇒ Configuration Management
- ⇒ Fault Tolerance
- ⇒ Event-Driven Architecture: Apache Kafka

Module 6: Modern Frontend Engineering

- ⇒ HTML5, CSS3 & Responsive Design
- ⇒ JavaScript ES6+
- ⇒ Typescript
- ⇒ React JS and Redux Toolkit
- ⇒ API Integration

Module 7: Cloud, DevOps & Deployment

- ⇒ Git & Github
- ⇒ Docker Containerization
- ⇒ Kubernetes Orchestration
- ⇒ AWS Cloud Services
- ⇒ CI/CD Pipelines: Jenkins & Github Actions

Module 8: Generative AI Engineering

- ⇒ AI Fundamentals
 - ⇒ Large Language Models (LLMs)
 - ⇒ Prompt Engineering
 - ⇒ OpenAI, Gemini & Claude APIs
 - ⇒ AI Application Integration
 - ⇒ AI-Assisted Software Development
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Module 9: Agentic AI & RAG Systems

- ⇒ Spring AI
 - ⇒ LangChain4j
 - ⇒ Vector Databases
 - ⇒ Embeddings & Semantic Search
 - ⇒ Retrieval-Augmented Generation (RAG)
 - ⇒ AI Agents & Multi-Agent Systems
 - ⇒ MCP (Model Context Protocol)
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Module 10: Software Architecture & System Design

- ⇒ SOLID Principles
 - ⇒ Design Patterns
 - ⇒ Clean Code Practices
 - ⇒ Low-Level Design (LLD)
 - ⇒ High-Level Design (HLD)
 - ⇒ Scalable System Design
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Module 11: Enterprise Project Development

Project 1

AI-Powered Application

Project 2

Enterprise Knowledge Assistant (RAG Based)

Project 3

Microservices-Based Business Application

Module 12: Career & Placement Excellence

- ⇒ Resume Building
- ⇒ Github Portfolio Development
- ⇒ LinkedIn Optimization
- ⇒ Mock Coding Interviews
- ⇒ Technical Interviews

Program Learning Journey

Foundation: Programming → Java → DSA

Development: Database → Backend → Frontend

Engineering: Microservices → Cloud → DevOps

Innovation: Generative AI → RAG → Agentic AI

Architecture: Design Patterns → LLD → HLD → System Design

Career: Projects → Portfolio → Interviews

Program Outcomes

- Strong Programming & DSA Skills
 - Java Full Stack Development Expertise
 - Enterprise Application Development
 - Cloud & DevOps Deployment Skills
 - AI-Powered Application Development
 - Agentic AI & RAG Implementation
 - Software Architecture & Design Knowledge
 - 3 Industry-Level Projects
 - Interview & Placement Readiness
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Target Job Roles

- ❖ Java Full Stack Developer
- ❖ Software Engineer
- ❖ Backend Engineer
- ❖ Microservices Developer
- ❖ AI-Assisted Application Developer
- ❖ GenAI Developer
- ❖ RAG Engineer
- ❖ AI Solutions Engineer

Program Duration: 3.5 Months (Daily 4 hours)
