Certificate Program In Software Architecture

Duration – 80 Hours

Program Description

This program prepares learners to take on the role of a software architect by providing a comprehensive understanding of architectural principles, patterns, and practices. Participants will learn how to design, evaluate, and evolve software systems that meet business needs while addressing scalability, performance, and security requirements. The program emphasizes architecture decision-making, trade-offs, and documentation aligned with industry standards.

Learning Goals

- Develop a solid foundation in software architecture concepts and frameworks
- Understand architectural styles and patterns (monolithic, layered, microservices, event-driven, etc.)
- Apply architectural decision-making and trade-off analysis
- Learn best practices for scalability, performance, and reliability
- Gain expertise in cloud-native and distributed architectures
- Understand security, compliance, and integration considerations
- Document architectures using standard notations and tools (C4, UML, ADRs)
- Demonstrate skills through a practical architecture case study

Course Topics

- Introduction to Software Architecture & Role of an Architect
- Architectural Principles & Quality Attributes (Scalability, Reliability, Maintainability)
- Architectural Styles (Layered, Event-Driven, Microservices, SOA, Serverless)
- Architecture Design Patterns & Reference Models
- Cloud-Native Architecture & Distributed Systems Design
- Security & Compliance in Architecture
- Architecture Documentation (UML, C4 Model, ADRs)
- Trade-off Analysis & Decision Frameworks
- Performance, Scalability, and Cost Optimization Strategies
- Capstone Project: Designing an Enterprise-Grade Software Architecture