

System Design and Architecture Training

Course Duration: 40 Hours

Course Code: SDA-101

1. Course Overview

This System Design and Architecture Training program equips learners with the skills to design scalable, reliable, and high-performance systems. It covers modern architecture patterns, microservices, cloud integration, and real-world case studies to help professionals build robust enterprise-level applications.

2. What You'll Learn

- Fundamentals of system design and architecture
- Monolithic vs Microservices architecture
- Scalability, load balancing, and caching strategies
- Database design (SQL & NoSQL)
- API design and integration
- Cloud architecture (AWS/Azure basics)
- Designing fault-tolerant and highly available systems
- Real-world system design case studies

3. Target Audience

- Software Developers & Engineers
- Technical Leads & Architects
- DevOps Professionals
- IT Graduates and Aspiring Architects
- Anyone preparing for system design interviews

4. Pre-Requisites

- Basic knowledge of programming (Java, Python, etc.)
- Understanding of databases and web applications
- Familiarity with basic networking concepts (preferred)

5. Course Content

- Introduction to System Design
- Architecture Patterns & Principles
- Monolithic vs Distributed Systems
- Microservices Architecture
- API Gateway & Service Communication
- Database Scaling & Sharding
- Caching Mechanisms (Redis, CDN)
- Load Balancing Techniques
- Message Queues & Event-Driven Systems
- Cloud & Deployment Architecture
- Security & Performance Optimization
- Case Studies (Netflix, Amazon-like systems)
- Capstone Project