



Consulting and Training | Reach New Heights

**Course Name**

# System Design and Architecture

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**Sector Name**

Information Technology

**Document Type**

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## System Design and Architecture

### Course Introduction

Effective system design and architecture are critical for building scalable, maintainable, and high-performance software solutions. This course equips participants with the skills to design robust system architectures, make strategic design decisions, and optimize workflows for operational efficiency. Participants will gain practical knowledge in designing modular, scalable, and flexible systems that meet business requirements and technical constraints.

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## System Design and Architecture

### Target Audience

- ✓ Software Engineers and Developers
- ✓ Software Architects and Solution Architects
- ✓ DevOps and Infrastructure Engineers

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## System Design and Architecture

### Learning Objectives

- ✓ Understand the principles and best practices of system design and architecture.
- ✓ Design scalable, maintainable, and high-performance software systems.
- ✓ Make informed architectural decisions based on business requirements and constraints.
- ✓ Apply design patterns and architectural styles for robust systems.
- ✓ Identify potential bottlenecks and optimize system workflows.
- ✓ Align system architecture with operational, security, and performance goals.

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## System Design and Architecture

### Course Outline

#### ✓ DAY 01

##### **Fundamentals of System Design and Architecture**

- ✓ Introduction to system architecture concepts
- ✓ Types of system architectures: monolithic, microservices, serverless
- ✓ Principles of scalable, maintainable, and flexible design
- ✓ System requirements gathering and analysis
- ✓ Aligning architecture with business and technical goals

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## System Design and Architecture

### Course Outline

#### ✓ Day 02

##### **Designing Modular and Scalable Systems**

- ✓ Component-based and modular design principles
- ✓ Interface design and separation of concerns
- ✓ Designing for scalability and high availability
- ✓ Load balancing, redundancy, and fault tolerance
- ✓ Planning for future growth and system evolution

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## System Design and Architecture

### Course Outline

#### ✓ Day 03

##### **Architectural Patterns and Best Practices**

- ✓ Common architectural patterns: layered, event-driven, client-server, CQRS
- ✓ Design patterns for maintainable and reusable systems
- ✓ Handling concurrency, transactions, and data consistency
- ✓ Security considerations in system architecture
- ✓ Selecting the right architecture for specific business needs

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## System Design and Architecture

### Course Outline

#### ✓ Day 04

##### **Performance Optimization and Reliability**

- ✓ System bottleneck identification and optimization techniques
- ✓ Caching strategies, database design, and data flow optimization
- ✓ Monitoring, logging, and observability
- ✓ Ensuring system reliability and fault tolerance
- ✓ Case examples of high-performance system designs

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### Course Outline

#### ✓ Day 05

##### **Integrating and Evolving System Architectures**

- ✓ Designing for integration with third-party services and APIs
- ✓ Versioning, backward compatibility, and system upgrades
- ✓ Continuous improvement and evolution of system architecture
- ✓ Aligning architecture with DevOps and CI/CD pipelines
- ✓ Strategic roadmap for scalable, secure, and efficient systems

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## System Design and Architecture

### Confirmed Sessions

FROM	TO	DURATION	FEES	LOCATION
May 10, 2026	May 14, 2026	5 days	4250.00 \$	KSA , Riyadh
Oct. 25, 2026	Oct. 29, 2026	5 days	2150.00 \$	Virtual , Online
March 29, 2027	April 2, 2027	5 days	5950.00 \$	USA , Los Angeles
Aug. 24, 2026	Aug. 28, 2026	5 days	4250.00 \$	UAE , Dubai

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