



Civil Engineering

Advanced Systems Architecture and Integration

Course Introduction

This course focuses on the principles and practices of systems architecture and integration in complex engineering environments. It covers both theoretical concepts and practical applications, enabling participants to design and implement robust, scalable system architectures.

Target Audience

- civil engineers.
- Experienced Civil Engineers Seeking Professional Development
- Architects and Urban Planners
- Entrepreneurs in the Construction Industry
- Project Managers in the Construction Industry

Learning Objectives

- Understand advanced concepts in systems architecture
- Learn to design and implement complex integrated systems
- Develop skills in systems thinking and holistic design approaches
- Gain knowledge of emerging technologies and their integration
- Enhance problem-solving skills for system-level challenges

Course Outline

- **DAY 01**

- Fundamentals of Advanced Systems Architecture**

- Systems thinking and its application in engineering
 - Architectural patterns and styles
 - Requirements engineering for complex systems

- **Day 02**

- System Integration Strategies**

- Integration patterns and best practices
 - Middleware technologies and their applications
 - Interoperability challenges and solutions

- **Day 03**

- Scalability and Performance in System Design**

- Designing for scalability
 - Performance modeling and analysis
 - Capacity planning and management

- **Day 04**

- Emerging Technologies and Their Integration**

- IoT and edge computing in system architecture
 - Cloud and hybrid architectures
 - AI and machine learning integration

- **Day 05**

- Architecture Governance and Management**

- Enterprise architecture frameworks
 - Architecture evaluation methods
 - Managing architectural debt

Confirmed Sessions

FROM	TO	DURATION	FEES	LOCATION
April 28, 2025	May 2, 2025	5 days	4250.00 \$	KSA - Riyadh
July 14, 2025	July 18, 2025	5 days	4250.00 \$	UAE - Abu Dhabi
Oct. 20, 2025	Oct. 24, 2025	5 days	5950.00 \$	USA - Texas
Nov. 30, 2025	Dec. 4, 2025	5 days	2150.00 \$	Virtual - Online