



Quality Management & Operational Excellence

Advanced Systems Integration in Engineering and Operations

Course Introduction

This course is designed for engineering and operations professionals who need to manage complex system integrations. It covers advanced techniques for integrating various engineering systems, processes, and technologies to create cohesive and efficient operational environments.

Target Audience

- Quality & Process Engineers – Improving system integration.
- Operations & Manufacturing Managers – Optimizing processes.
- Systems & Industrial Engineers – Enhancing quality systems.
- IT & Digital Experts – Implementing smart solutions.
- Supply Chain & Procurement Professionals – Strengthening supplier integration.
- Compliance Officers – Ensuring regulatory alignment.

Learning Objectives

- Develop comprehensive integration strategies for complex engineering systems
- Apply advanced methodologies for seamless integration of diverse technologies
- Manage cross-functional teams in integration projects
- Identify and mitigate risks associated with system integration
- Implement best practices for continuous integration and deployment
- Evaluate and optimize integrated systems for enhanced performance

Course Outline

• 01 DAY ONE

Foundations of Advanced Systems Integration

- Overview of systems integration in engineering and operations
- Integration architectures and frameworks
- Interoperability standards and protocols
- Systems of systems (SoS) integration concepts
- Case study: Analyzing a complex integration scenario

• 02 DAY TWO

Integration Planning and Strategy Development

- Developing comprehensive integration plans
- Stakeholder analysis and management in integration projects
- Integration requirements gathering and analysis
- Technology selection and compatibility assessment
- Workshop: Creating an integration strategy for a given scenario

• 03 DAY THREE

Advanced Integration Techniques and Tools

- Service-oriented architecture (SOA) in system integration
- API management and microservices architecture
- Data integration and ETL (Extract, Transform, Load) processes
- Cloud integration platforms and technologies
- Hands-on session: Implementing an integration solution using modern tools

• 04 DAY FOUR

Integration Testing and Quality Assurance

- Test planning for integrated systems
- Automated testing strategies for continuous integration
- Performance testing of integrated systems
- Security testing in integrated environments
- Practical exercise: Developing and executing integration test plans

• 05 DAY FIVE

- Monitoring and analytics for integrated systems
- Continuous integration and continuous deployment (CI/CD) practices
- Change management in integrated environments
- Future trends in systems integration (AI, IoT, blockchain)
- Final project: Presenting an optimized integration solution

Confirmed Sessions

FROM	TO	DURATION	FEES	LOCATION
May 11, 2025	May 15, 2025	5 days	4250.00 \$	KSA - Riyadh