Project & Contract Management

Systems Engineering and Integration

Course Introduction

This comprehensive 5-day course is tailored for managers and senior professionals involved in complex system development and integration. It provides a high-level understanding of systems engineering principles, processes, and best practices. The course focuses on the managerial aspects of systems engineering, including decision-making, risk management, and integration strategies. Participants will learn how to effectively lead and manage systems engineering efforts, ensure successful system integration, and align systems engineering practices with organizational goals.

Target Audience

This course is designed to equip managers with the knowledge and skills needed to effectively lead and manage systems engineering efforts in their organizations, ensuring successful system development, integration, and alignment with business objectives.

Learning Objectives

- Understand the fundamental concepts and principles of systems engineering
- Develop skills to manage the systems engineering process throughout the system lifecycle
- Learn strategies for effective system integration and interface management
- Understand how to align systems engineering practices with business objectives
- Develop skills in risk management and decision-making in systems engineering projects
- Learn how to lead and manage multidisciplinary teams in systems engineering efforts
- Understand emerging trends and technologies in systems engineering

Course Outline

- **01 DAY ONE**

  Foundations of Systems Engineering

  - Understand the role and importance of systems engineering in complex projects
  - Learn the fundamental concepts and principles of systems engineering
  - Recognize the systems engineering lifecycle and its key phases
  - Introduction to Systems Engineering
  - Systems Thinking and Its Application in Management
  - The Systems Engineering Lifecycle
  - Systems Engineering Standards and Frameworks (e.g., ISO/IEC 15288, INCOSE)
  - The Role of Managers in Systems Engineering

- **02 DAY TWO**

  Requirements Engineering and System Architecture

  - Understand the importance of requirements engineering in systems development
  - Learn techniques for managing requirements throughout the system lifecycle
  - Gain insights into system architecture development and management

- Requirements Engineering Process
- Requirements Elicitation and Analysis Techniques
- Managing Requirements Changes and Traceability
- System Architecture Development
- Architecture Frameworks (e.g., TOGAF, DoDAF)
- Making Architectural Decisions

• **03 DAY THREE**

System Integration and Interface Management

- Understand the challenges and strategies for system integration
- Learn techniques for effective interface management
- Develop skills in managing complex system interactions
- System Integration Strategies and Challenges
- Interface Management Principles and Practices
- Managing System of Systems (SoS) Integration
- Verification and Validation in System Integration
- Configuration Management for Complex Systems
- Case Studies in Successful System Integration

• **04 DAY FOUR**

Risk Management and Decision Making in Systems Engineering

- Understand risk management principles in the context of systems engineering
- Learn decision-making techniques for complex systems projects
- Develop skills in managing trade-offs in systems engineering
- Risk Management in Systems Engineering Projects
- Decision-Making Techniques for Complex Systems
- Trade-off Analysis and Management
- Technical Performance Measures and Key Performance Indicators
- Managing Uncertainty in Systems Engineering
- Ethical Considerations in Systems Engineering Decisions

• **05 DAY FIVE**

Leading Systems Engineering Teams and Future Trends

- Learn strategies for leading multidisciplinary systems engineering teams
- Understand how to align systems engineering with business objectives
- Gain insights into emerging trends and technologies in systems engineering
- Leading and Managing Systems Engineering Teams
- Stakeholder Management in Systems Engineering Projects
- Aligning Systems Engineering with Business Strategy

- Agile and Lean Approaches in Systems Engineering
- Emerging Technologies in Systems Engineering (e.g., Model-Based Systems Engineering, Digital Twins)
- Future Trends in Systems Engineering
- Course Review and Action Planning

Confirmed Sessions

FROM	TO	DURATION	FEES	LOCATION
May 26, 2025	May 30, 2025	5 days	4250.00 $	UAE - Abu Dhabi
Aug. 31, 2025	Sept. 4, 2025	5 days	4250.00 $	KSA - Riyadh
Dec. 8, 2025	Dec. 12, 2025	5 days	5950.00 $	USA - Texas