An Introduction to Systems Engineering with Requirements Writing

Training Course

Learn the Principles and Practices of Systems Engineering

Welcome to our 2-day Introduction to Systems Engineering with Requirements Writing course! In today's increasingly complex engineering landscape, the success of any project hinges on clear, well-defined requirements and a robust systems engineering approach. Delivered by an INCOSE Certified Systems Engineering Professional (CSEP), this course is designed to equip you with the foundational knowledge and practical skills necessary to define, manage, and validate requirements effectively, ensuring that your system design meets stakeholder needs and expectations.

Through this course, you'll explore key concepts of systems engineering, including lifecycle processes, requirements traceability, and verification methods. You will also gain hands-on experience in writing clear, concise, and testable requirements, learning how to manage changes and ensure alignment between technical specifications and project goals. Whether you are a beginner or an experienced engineer looking to refine your skills, this course will provide you with the tools and techniques essential to successful systems engineering and requirements management.

Who Benefits?

- Engineers & Technical Professionals
- Project Managers & Systems Architects
- Business Analysts & Product Managers
- Quality Assurance Professionals
- Manufacturing & Operations Managers
- IT & Software Professionals
- Researchers & Academics
- Government & Defence Contractors

By the end of the course, you will be confident in your ability to contribute to complex systems development, ensuring that your projects are built on a solid foundation of well-crafted requirements. Let's get started!

By the end of this course, you will be able to:

- **Understand the Foundations of Systems Engineering**
  Grasp the key principles, processes, and lifecycle stages of systems engineering, and how they apply to the development of complex systems.

- **Define and Structure Requirements**
  Develop the skills to write clear, concise, and testable requirements that capture stakeholder needs and align with system objectives.

- **Differentiate Between Types of Requirements**
  Identify and categorise different types of requirements, such as functional, non-functional, system, and user requirements, and understand their roles within a system design

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- **Master Requirements Traceability**
  Learn the importance of traceability in ensuring consistency across the system lifecycle and how to establish traceability from high-level requirements to design, implementation, and testing.
- **Apply Systems Engineering Tools and Techniques**
  Gain familiarity with tools used in systems engineering for modelling, analysing, and managing requirements throughout the development process.
- **Understand Requirements Validation and Verification**
  Explore methods for verifying that requirements are implemented correctly and validating that the system meets stakeholder needs and specifications.
- **Implement Change Management in Requirements**
  Learn best practices for managing changes to requirements and ensuring that modifications do not compromise the integrity of the system.
- **Collaborate Across Disciplines**
  Understand how systems engineers work across multiple disciplines to integrate diverse components into a cohesive system and communicate effectively with stakeholders.

These outcomes will prepare you to successfully manage complex projects, ensuring systems are designed, built, and delivered with clear, accurate, and actionable requirements.

Syllabus Main Points

Day One

- What is Systems Engineering?
- The Major Principles
- Processes
- Requirements Management (RM)

Day Two

- Validation & Verification (V&V)
- Configuration Control (CC)
- Design Process

Day 2 includes a specialist and practical Requirements Writing workshop.

A full course syllabus can be provided on request. For further information on pricing and how to book, contact the Optimise Engineering team by emailing cet@optimise-engineering.co.uk

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About Optimise Engineering

Optimise Engineering is a provider of systems engineering solutions, specialising in the design, integration, and management of complex systems. With a focus on innovation and excellence, Optimise Engineering is dedicated to delivering solutions that drive success.

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