3-DAY COURSE

Requirements Engineering Fundamentals

Capture, validate, author and manage requirements better

Why Requirements Engineering Fundamentals?

Endless studies continue to show that requirements defects remain the single greatest cause of project problems, delays, rework, and cost overruns. Yet many engineers and project teams still rely on incomplete, unclear, or poorly structured requirements.

This course provides a practical introduction to the principles and methods of requirements analysis and requirements specification. Participants learn how to capture, validate, author, structure, trace and communicate requirements more effectively.

Learn how to identify defects early, improve requirements quality, and produce clearer requirements specifications. Through workshop-based learning, participants apply practical techniques for requirements capture, analysis, validation, and writing that can be immediately applied within projects and engineering environments.

Earn CE/CPD Credit

This course is recognized for professional development purposes:

INCOSE CSEP Renewal

- 24 Continuing Education PDUs

PMI Talent Triangle® Suggested PDUs

- 23 Ways of Working
- 1 Business Acumen

What You Will Learn

Participants will gain practical understanding of requirements engineering principles, methods, and tools.

Topics include:

- Requirements quality and requirements types
- Context analysis and parsing analysis
- Functional analysis for requirements capture, validation and structuring
- Writing individually strong requirements using proven templates and techniques
- Improving clarity, reducing ambiguity, and strengthening requirements databases/specifications

Learn how to identify defects early, improve requirements quality, and produce clearer, easier to use requirements sets.

20,000+ Professionals Trained Across 43 Countries

Who Should Attend

This course is suited to engineers, business analysts, project personnel, managers, acquirers, suppliers, and others involved in defining, analyzing, reviewing, communicating, or managing requirements.

It is particularly valuable for professionals seeking a practical understanding of how better requirements practices contribute to improved project and engineering outcomes.

Ideal for anyone who works with requirements in any capacity.

Training Methods & Materials

The course is delivered through a mixture of formal presentation, informal discussion, and extensive workshop activity designed to reinforce learning through practical application. Participants work through realistic examples and exercises that build understanding progressively throughout the course.

You will receive:

- Comprehensive training manual
- Workshop exercises and worked examples
- Templates, checklists, guides, and practical reference material
- Complimentary access to PPI's evolving Systems Engineering Goldmine resource

The emphasis throughout the course is on practical understanding and immediate workplace application.

*"**Deep, deep content!!!** Requirements parsing!!!!! Each company handles, packages requirements/specifications differently - and it was great to get best practices - to know all that is to either be considered or streamlined."*

Course participant, Blackboard Inc., USA

*"I obtained a **wealth of knowledge** of the subject, which can be applied in my daily work."*

Course participant, Lockheed Martin Australia Electronic Systems Pty Ltd, Australia

*"My eyes were opened and **I am an evangelist for requirements** now!"*

Course participant, Booz Allen Hamilton, USA

Why PPI?

Trusted Worldwide
PPI delivers outstanding training and consulting to many hundreds of enterprises worldwide, from Fortune 100 companies (presently 19% of them) to small start-ups. PPI is a truly international company, with personnel based in eight countries, and clients across six continents benefiting from our work.

PPI Presenters
PPI's presenters are internationally recognized systems engineering practitioners and consultants who bring decades of real-world experience, ensuring every concept taught is value-adding, practical, relevant and immediately implementable.

Requirements Engineering Fundamentals 3-Day Course Outline

1. Requirements Analysis

- What are requirements?
- Types of requirements, and how they relate to analysis, specification and design
- Requirements quality attributes
- Requirements languages other than natural: operational, formal
- Requirements analysis (RA) – how to do it
- ***Workshop – context analysis***
- ***Workshop – design requirements analysis (interactive whiteboard exercise)***
- ***Workshop – states and modes analysis***
- ***Workshop – parsing analysis***
- Requirements quality metrics
- ***Workshop – functional analysis***
- Lean concepts in functional analysis for the product-oriented enterprise
- Entity relationship analysis (ERA) analysis, rest of scenario analysis, out-of-range analysis, other constraints search, stakeholder value analysis
- The Operational Concept Document (OCD) (equivalent to Operational Concept Description)
- Managing RA
- Requirements analysis and management software tools
- Example applications of AI to requirements analysis
- Common pitfalls in performing RA

2. Requirements Specifications

- The eight types of requirements and their significance to specification writing
- Differences for software and services

3. Specification Types

- The ten types of requirements specification
- Score sheet for public domain requirements specification standards

4. Structuring Your Requirements Specification

- Structuring a system requirements specification
- Dealing with variants
- ***Workshop – writing a scope section***
- Dealing with states and modes
- Functional versus design oriented specifications
- Structuring to specify function and performance
- ***Workshop – structuring a specification to deal with states, modes and functions (optional)***
- ***Workshop – classifying requirements as functional or design***
- ***Workshop – writing a functionally-oriented requirements specification***
- ***Workshop – writing a design-oriented requirements specification***
- Specifying other requirements types – environmental, resource, physical and other qualities
- Structuring the specification of any design direction in requirements
- Structuring an Interface Requirements Specification
- Structuring a Statement of Work

5. Requirements Specification Writing in English – Use of Language

- Requirement writing template
- ***Workshop – using the parsing template***
- Requirements constructs
- Cross shall, should, will, and may
- Syntax in general – the helpful, the problematic, work-arounds
- Linking
- Cross-referencing
- Defining terms
- Context dependence
- Reference to applicable documents
- Use of precedence
- Using success criteria to express otherwise vague requirements
- ***Workshop – using success criteria***
- Example applications of AI to requirements specification

6. In Closing

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systems/product engineering training & consulting for project success ...