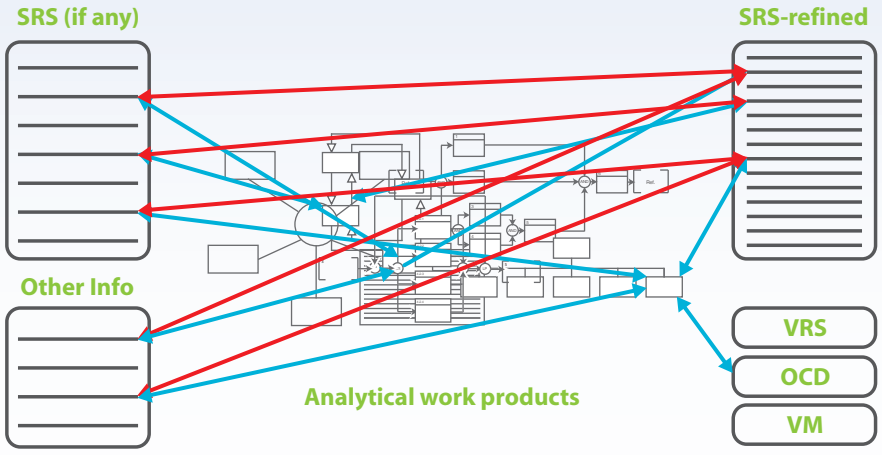
Requirements Analysis
& Specification Writing

A Course Over Five Days
Presented by Mr Robert Halligan

LAS VEGAS, USA
22 - 26 February 2010

Requirements problems are at the top of the list of reasons why projects go wrong.

Commercial, military, other government, consultants... users, acquirers, product designers, suppliers. You will learn, in Requirements Analysis, systematic, effective ways to capture and validate requirements to a measurable and appropriate standard. In Specification Writing, a two day module, you will learn how to structure a specification of requirements and how to best express those requirements in natural language (English). Both the Requirements Analysis and Specification Writing modules apply to both products and services. Examples are oriented towards products.



What people have said about this course:

"The structure was excellent. I wish I could have taken this course when I started working at USAF. I really got a lot out of the entire course" - delegate, United States Air Force

"The best thing about the course was understanding the requirements content, the analysis techniques and the layout of a Requirements Specification" - delegate, Northrop Grumman Corporation, USA

"It is applicable to Systems Engnieers, Design Engineers, Materials Acquisition. Anyone who can fully understand the material and master it can use it in any career" - delegate, General Dynamics, USA

"My eyes were opened and I am an evangelist for requirements now!" - delegate, Booz.Allen & Hamilton, USA

"The course has changed the way that I look at and think about requirements and specifications" - delegate, USA

"The best thing was the ability of the presenter to teach what could be dry material in a fun way" - Raytheon Technical Services, USA

8:30am to 5:00pm daily

Clarion Las Vegas
325 E. Flamingo Road
Las Vegas, NV 89109

Course Code: P007-260

Who should attend?

- Acquirer Personnel
- Supplier Personnel
- Developer Personnel

... who, in any capacity, deal with requirements.

> **"I enjoyed having the analysis create a clear path to a clean, accurate finished product."**
>
> **delegate, Boeing Company, USA**

Fee Structure

Standard Fee USD$2,890

Earlybird/Group Fee USD$2,601*

*Group fee applies to registrations of 3 or more delegates at the same time. Earlybird fee applies when payment is received 30 days prior to the first day of the course.

** Course dates are subject to change. Please check website for program updates.

This course is recognised by Engineers Australia for CPD purposes (40 Hours)

Our courses are available on-site. Enquire for more information.

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PROJECT PERFORMANCE INTERNATIONAL

PPI-004409-1

Requirements Analysis & Specification Writing
Course Outline

PROJECT PERFORMANCE INTERNATIONAL

Requirements Analysis

1. **Why Emphasise Requirements?**
   - issues and terminology
   - lessons from real projects
   - requirements and the law

2. **Requirements Within the System Life Cycle**
   - the origin of requirements
   - concept of the system boundary
   - the modelling boundary
   - the systems engineering process
   - development of system architecture and detail design
   - requirements traceability
   - summary of terms relating to requirements
   - baselines and their use
   - the waterfall life cycle paradigm
   - incremental acquisition/development
   - evolutionary acquisition/development
   - *Workshop - requirements engineering principles*
   - common requirements pitfalls in the system life cycle

3. **What are Requirements?**
   - definitions and views
   - relationship to design
   - relationship to baselines.

4. **Types of Requirements**
   - why categorise requirements by type?
   - eight basic types
   - differences between requirements for hardware, software, services
   - non-requirements
   - *Workshop - categorising requirements by type*
   - other categories- design drivers, critical, global, priority, importance,stability

5. **The Quality of Requirements**
   - correctness
   - completeness
   - consistency
   - clarity
   - non-ambiguity
   - traceability
   - testability
   - singularity
   - feasibility
   - freedom from product/process mix

6. **Requirements Analysis Techniques**
   - primary, secondary, tertiary stakeholders
   - initial assessment and planning
   - measuring requirements quality
   - methods of engaging in requirements dialogue
   - context analysis
   - *Workshop - context analysis*

6. **Requirements Analysis Techniques (cont.)**
   - design requirements analysis
   - states & modes analysis
   - *Workshop - states and modes analysis*
   - requirements parsing
   - *Workshop - parsing analysis*
   - functional analysis - needs analysis, operational analysis, use cases
   - *Workshop - functional analysis*
   - rest of scenario analysis
   - *Optional workshop - rest of scenario analysis*
   - out of range analysis
   - *Optional workshop - out of range analysis*
   - ERA analysis
   - other constraints search
   - value analysis
   - verification requirements development
   - operational concept description
   - clean up
   - special issues of the human interface
   - supplementary methods and notations
   - common pitfalls in requirements analysis

7. **Coping with the Real World**
   - what to do when the user "doesn't know"
   - how to respond to "moving goalposts"
   - protecting yourself from the communication chasm

8. **Tool Support to Requirements Analysis**
   - tools supporting requirements analysis
   - tools supporting requirements management
   - examples of available tools
   - common pitfalls in using tools

9. **Requirements Verification**
   - requirements reviews
   - use of metrics

10. **Mangement of Requirements Analysis**
    - mangement issues
    - using and managing "TBDs"
    - designing a requirements codification scheme
    - managing resolution of requirements issues
    - defining reviews and reports
    - risk mangement applied to the requirements phase
    - risk driven specifications

11. **Summary and Conclusion**

Specification Writing

1. **Transforming Requirements into Requirements Specifications**
   - what is a specification?
   - how requirements specifications relate to requirements
   - how requirements specifications relate to configuration baselines
   - using DIDs and templates
   - using a requirements database to automate specification production

2. **Requirements Flowdown into Specifications**
   - the specification tree
   - special considerations for interface requirements

3. **Requiements Specification Types**
   - types of requirements specification
   - IEEE specification standards
   - US military and other international specification standards
   - score sheet for public domain specification standards

4. **Structuring Your Specification**
   - what to put in your system requirements specification, the statement of work (or equivalent) and the conditions of contract
   - *Workshop - allocation of requirements to the specification, the statement of work and the conditions of contract*
   - structuring a statement of work
   - structuring a system requirements specification
   - dealing with variants
   - *Workshop - structuring a specification to deal with variants*
   - states and modes
   - *Workshop – structuring a specification to deal with states and modes*
   - functional versus design oriented specifications
     - differences
     - when to use each type
   - function and performance
   - *Workshop – classifying requirements as functional or design*

4. **Structuring Your Requirements Specification (cont.)**
   - *Workshop – writing a functionally oriented specification*
   - *Workshop – writing a design oriented specification*
   - other requirements types
   - annexes, appendices and applicable documents

5. **Specification Writing**
   - review of requirements quality
   - requirement structural template
   - *Workshop – expressing strong requirements*
   - requirements constructs
     - shall, should, will, and may
     - linking
     - cross-referencing
     - *Workshop – linking and cross-referencing*
     - defining terms
     - *Workshop – defining terms*
     - context dependence
     - reference to applicable documents
     - use of precedence
     - *Workshop – using precedence*
     - using success criteria to express otherwise vague requirements
     - *Workshop – using success criteria*
     - *Workshop – specification of key requirements for a system*
     - paragraph headings
     - use of supporting data
     - mission profiles/use cases
     - baseline designs
     - benchmarks
     - linking the specification to the statement of work or conditions of contract
     - test specifications
     - *Workshop – evaluation of example specifications*

6. **Bibliography**
   - additional reference material