PROJECT PERFORMANCE INTERNATIONAL

Interface Engineering & Management 16-Hour Course

Best practices for defining and managing system/subsystem interfaces

🕐 **16-hour course delivered over two days or 4 half-days**

Why Interface Engineering & Management?

Interface problems are the most commonly occurring class of problems experienced in integrating systems of all kinds. Every interface represents a point where information, control, time, or money can be lost through error, ambiguity, or contention between stakeholders. Despite their impact, many interface-related issues remain poorly understood and underrepresented in formal engineering education.

This course addresses how to avoid delays, rework, and failures caused by poorly defined and managed interfaces. The course introduces a clear, practical approach to identifying, defining, and controlling interfaces during development and beyond. The course is applicable to physical systems and is also relevant to software and human interfaces.

By applying proven best practices used by leading enterprises, participants gain the ability to manage interfaces purposefully rather than reactively, reducing project risk and improving overall system integrity.

Earn CE/CPD Credit

PMP **PMI Talent Triangle® Suggested PDUs**

- Ways of Working - 15
- Business Acumen - 1

INCOSE CSEP **INCOSE Certified Systems Engineering Professional (CSEP)**

- 16 Continuing Education PDUs

What You Will Learn

Participants learn how interface engineering fits within a holistic systems engineering approach and why disciplined interface management is essential to system success.

You will practise:

- identifying and defining interfaces
- planning interface management activities
- controlling interface changes.

The course builds capability in applying best practices to manage interface complexity and prevent integration issues. Through case study-based workshops, you will learn how to analyse interface risks, assess integration readiness, and understand the project impacts of interface changes.

20,000 Professionals Trained Across 43 Countries

ppi-int.com

PPI-008925-1-UK

Who Should Attend and Why

This course is designed for engineers and technical managers who perform, manage, control, or specify the development of technology-based systems with non-trivial interoperability needs. **The course is particularly valuable for those responsible for managing interfaces across system element or organisational boundaries**. Typical participants include design engineers, systems engineers, integration engineers, enterprise and system architects, software and hardware engineers, project engineers, and engineering managers. The course is also valuable for project managers and operations leaders dealing with interface-driven cost, schedule, or capability issues.

Training Methods & Materials

The training is delivered using a mixture of presentation, discussion, and extensive hands-on workshops centred on a realistic case study. Workshops are sequenced to mirror the interface-related activities of a well-run project, progressing from fundamentals to optimisation, modelling, and interface requirements specification. **The emphasis is on learning by doing, not passive content absorption**.

Participants receive a comprehensive training manual, a workbook containing case study exercises, reference answer handouts, and a set of interface specification document examples in both hard and soft copy. The course applies advanced adult learning techniques to ensure strong engagement and lasting mastery of interface engineering and management practices.

PPI Training Reviews

"Mr Davies is an excellent presenter, he is very clear and his style very appropriate."

Course participant, Argentina

"Paul was fantastic! All of the course contents are applicable to my environment. Very useful course, indeed."

Course participant, South Africa

"The course was dynamic, we had a lot of good discussions about the case example, and we could share and get feedback about our jobs"

Course participant, Argentina

PPI Presenter

Mr. Paul Davies

MA (Cantab), CSEP, MINCOSE
PPI Principal Consultant & Course Presenter

Paul Davies is an experienced systems engineering practitioner with over 30 years across defence, aerospace, nuclear, and rail. A former Discipline Manager at Network Rail and long-serving Thales engineer, he specialises in requirements, interfaces, verification and validation. Paul is a Past President of INCOSE UK, a Visiting Professor, and a highly regarded mentor and course presenter.

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 startups. PPI is a truly international company, with personnel based in eight countries, and clients across six continents benefitting from our work.

Interface Engineering & Management (2 Days or 4 Half-Days)

Day 1 (or days 1 and 2 for half-day deliveries)

1. Introductions, outline and mindmap
2. Basic systems concepts and relationships
3. What's Special about interfaces? Brainstorm, discussion and reference solution
4. Types or Categories; Brainstorm, discussion and reference solution

Morning break

5. Conceptualisation of Interfaces – the notional plane of the interface, and Context diagrams
6. Introduction to the Case Study
7. Context diagram – ***Case Study Workshop 1***

Lunch

8. Stakeholders – who are they, and what do they want? – ***Case Study Workshop 2***
9. Context Diagram refinement + application to organisations – ***Case Study Workshop 3***
10. Scenarios for animating the black box context diagram – ***Case Study Workshop 4***
11. Sources of complexity – candidate list, discussion of personal experiences, outline of tools & methods

Afternoon break

12. Interface lifecycle timeline; N-squared charts, example at black box level
13. Black box N-squared chart – ***Case Study Workshop 5***
14. N-squared charts at System Element level – white box example

Review of learning, homework – candidate white box N-squared chart for ***Case Study Workshop 6***

Day 2 (or days 3 and 4 for half-day deliveries)

15. Part 2 Introduction
16. Architecting through Interfaces using Design Patterns
17. Architecting Practice – Optimisation – ***Case Study Workshop 7***
18. Completeness checking; integrating Sequence Diagrams, N-squared charts, black box / white box models

Morning break

19. Elastic links exercise or simulation 2; discussion on impact of clustering / concentrator nodes
20. Timeline of Activities; Configuration States, Stepwise agreement, future-proofing and documentation – ***Case Study Workshop 8***
21. Configuration & Change control – ***Case Study Workshop 9***

Lunch

22. Planning for Integration, Verification and Validation (IVV); brainstorm personal stories, Dos & Don'ts
23. Use of models & MBSE tools versus document-centric; lessons learned and discussion
24. The IRS/ICD template – handout and discussion
25. Review of Requirements knowledge, and relationship to requirements specification; a template

Afternoon break

26-27. ***Final Workshop 10*** to create a draft IRS/ICD for part of Case Study
28. Review of new knowledge, Q&A, and feedback

Each break will resume with a review of learning. There may be homework!

www.ppi-int.com

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