INTERFACE ENGINEERING & MANAGEMENT

2 DAYS OR 4 HALF-DAYS
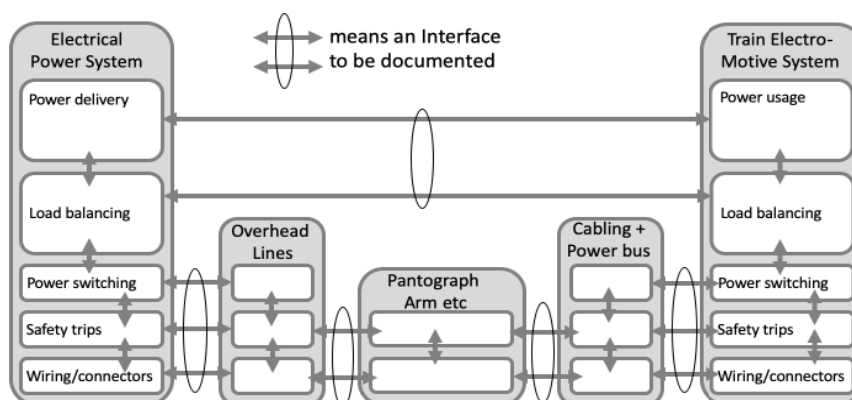
GAIN PROJECT TIME, KNOWLEDGE & CONTROL

Avoid the most commonly occurring class of problems experienced in system integration - interface problems. Every interface is an opportunity to lose information, time, control and/or money through error or contention between stakeholders at each end. Many issues surrounding interface engineering and management are relatively unexplored in the engineering literature - hence the high value for this course.

The groundbreaking course, over two days or four half-days, is simple enough to give anyone with good common sense and a modicum of technical knowledge and engineering practice a clear understanding of how to approach the definition and management of interfaces. Specifically, this course is aimed at the engineer or technical manager who wants to apply best practice techniques to avoid delays, rework and other detrimental consequences of getting interfaces wrong. Whilst focussed on human-engineered physical systems, the course has relevance to interfaces to software and humans.

Eight best practices are fully explained and illustrated to give participants the opportunity to apply the new knowledge. These practices are exploited by leading enterprises, often without formal documentation of the practice, to give a competitive advantage.

The modules are presented in an order comparable to those processes that are followed in a well-run project. A worked case study is used as a central theme, and as a basis for ten "learning by doing" workshops. The first two half-days are spent covering the basics and ensuring a good grounding in the best practices. The third half-day is then spent applying the practices to optimise system architecting around interfaces, and the final half-day covers modeling, documentation and practice writing interface requirements. The course may also be delivered over two full days.

A valuable set of templates and guidelines for writing interface specification documents is also included, as "handouts" and as an online resource.

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
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*
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
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

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
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*
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
26-7	*Final Workshop 10* to create a draft IRS/ICD for part of Case Study
28	Review of new knowledge, Q&A, and feedback