PROJECT PERFORMANCE INTERNATIONAL

Project Performance International Training Catalog

Driving high performance projects ...

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ABOUT PPI

Project Performance International (PPI) is a professional services company using systems engineering and related ways of thinking and acting to assist clients worldwide to successfully envision, design, develop, supply, and support simple to complex systems and products. Our alumni number over 17,000 professionals in 41 countries on six continents. Feedback from our clients and alumni is strongly positive:

Client Survey Question	"Yes" Response*
Did the PPI training you took improve your personal work performance?	100%
Did the PPI training you took improve the performance of the company's engineering projects?	98.3%
Did the PPI training you took improve the performance of your company / organization?	93.5%

*PPI-conducted client survey. Independent audit possible.

PPI has two wholly owned subsidiary companies:

- **Certification Training International Pty Ltd (CTI)**. CTI delivers certification training worldwide, focused on preparing delegates to pass the INCOSE Certified Systems Engineering Professional (CSEP) Knowledge Examination and to qualify for the German SE-ZERT Certification; and
- **Project Performance International USA Inc (PPI-USA)**. PPI-USA delivers project performance consulting and training in the United States on behalf of PPI, mainly to the U.S. Government.

together with two Business Units of PPI:

- **PPI Live-Online™ (PL-O)**
- **PPI On-Demand™ (PO-D).**

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1. Architectural Design Course

Course Code: AD5D (P1768)

Duration: 5-Days - 8.5 hours each day with multiple breaks

Delivery Format: PPI Live-Online™ (public & corporate). Physical delivery may also be possible.

Delivery Location: Worldwide (except Russia)

Instructors: Mr Robert Halligan or Mr Alwyn Smit (subject to change)

Course Description: This five-day course addresses the principles and methods of designing, regardless of what is being designed. The course provides an integrated approach to the set of technical design principles and process disciplines. These combine with technology knowledge to contribute to the satisfaction of requirements and maximization of system effectiveness, enhancing project success and reducing risk to the enterprise.

The course is strong in Model-Based Systems Engineering (MBSE) methods supported by substantial workshop activity. The course provides insight into the realities of current modelling languages and tools and the directions in which model-based design is evolving. Participants gain experience in workshop format with both functional and state-based design, and their relationship to physical design. The third major aspect of design, the basis of decision-making between feasible design alternatives (i.e., the conduct of trade-off studies) is thoroughly exercised. Trade-off studies are then integrated into a very effective three-stage approach to design optimization. The course also provides introductory, yet significant, coverage of the disciplines of reliability engineering, safety engineering, maintainability engineering and producibility engineering.

This course is suitable for any professional who makes non-trivial design decisions, irrespective of the application domain and irrespective of the technologies involved, including software-intensive systems but excluding purely software.

More information: https://www.ppi-int.com/training/design-training-courses/architectural-design-5-day/

2. Engineering Successful Infrastructure Systems Course

Course Code: ESIS5D (P2005)

Duration: 5-Days - 8.5 hours each day with multiple breaks

Delivery Format: PPI Live-Online™ (public & corporate). Physical delivery may also be possible.

Delivery Location: Worldwide (except Russia)

Instructor: Dr. George Sousa (subject to change)

Course Description: Poorly managed infrastructure projects have wasted almost $30B of taxpayer funds. Berlin's new airport is a contender for the world's most useless. More lawsuits filed over the Miami bridge collapse. Trains too wide to fit tunnels. The outrageous highway schemes left as roads to nowhere. A project that turned a proud stadium into a national joke. Critical Infrastructure under attack. These are REAL public-domain headlines!

These, of course, are mainly dramatic, one-off cases. But worldwide average performance of infrastructure projects is nothing to be proud of. For example, a 2012 Dutch study showed that for rail projects, average project cost performance in northwest European countries was 27% overrun and in other geographical areas, 44% overrun. Corresponding figures for bridge projects were 45% and 27% respectively. The picture in the United States is similar to that in Europe.

This course is a five-day immersion in the successful engineering of infrastructure that delivers maximum value to stakeholders. The course is based on systems thinking, here applied to projects and engineering. And so, the course has a strong systems engineering foundation. Systems engineering as a discipline has been proven to substantially reduce costs, reduce project durations and increase client satisfaction.

More information: https://www.ppi-int.com/training/systems-engineering-training-courses/engineering-successful-infrastructure-systems-5-day/

3. INCOSE SEP Exam Preparation Course (CTI)

Course Code: ISEP5D (C002)

Duration: 5-Days - 8 hours each day with multiple breaks

Delivery Format: CTI Live-Online (public & corporate)

Delivery Location: Worldwide (except Russia)

Instructors: Ms René King, Mr Clive Tudge, Mr Deva Henry, Paul Davies or Mr. D. M. Gainford (subject to change)

Course Description: This virtually delivered INCOSE SEP Exam Preparation Course combines a mixture of presentations, discussions, a variety of exercises, group work sessions, workshops and practice examinations to achieve a high degree of learning to pass the INCOSE SEP Knowledge Exam. The course is facilitated by a world-class, qualified, expert leader who is highly experienced and knowledgeable in all aspects of the SEP certification process.

The course utilizes a variety of adult learning techniques optimized for the type of content that needs to be mastered. Throughout the course there is a strong focus on interaction, the social aspects of learning, and integration with the learner's existing knowledge framework. The result is a highly engaging course with a great degree of subject mastery.

CTI's ISEP course will equip participants with the knowledge and information to comfortably sit the Knowledge Examination. Utilizing leading edge adult learning principles and techniques enables the participants to absorb and recall the necessary information in the fastest possible way.

The role and benefits of systems engineering within the participant's organization will be clearly communicated and understood by the use of the internationally recognized terminology contained within the INCOSE Systems Engineering Handbook. On completion of this course, participants will have the ability to use the handbook as a reference and guide, not only for current learning but also for future systems engineering developments.

More information: https://certificationtraining-int.com/incose-sep-exam-prep-course/

4. Interface Engineering and Management Course

Course Code: IEM2D (P2500)

Duration: 2-Days (8 hours each day) or 4 half-days (4 hours each day) with multiple breaks

Delivery Format: PPI Live-Online™ (public & corporate). Physical delivery may also be possible.

Delivery Location: Worldwide (except Russia)

Instructor: Mr Paul Davies or Mr Alwyn Smit (subject to change)

Course Description: 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 of this course.

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 foster project success and give 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 modelling, documentation and practice writing interface requirements. A valuable set of templates and guidelines for writing interface specification documents is also included, as "handouts" and as an online resource.

More information: https://www.ppi-int.com/training/systems-engineering-training-courses/interface-engineering-and-management-2-day/

5. Managing Technical Projects Course

Course Code: MTP2D (P1079)

Duration: 2-Days – 8.5 hours each day with multiple breaks

Delivery Format: PPI Live-Online™ (corporate only). Physical delivery may also be possible.

Delivery Location: Worldwide (except Russia)

Instructors: Mr Robert Halligan or Mr Clive Tudge (subject to change)

Course Description: Experience is that projects have difficulty in delivering solutions to stakeholders on time, on budget and satisfying needs. The greater the problem complexity, solution complexity, novelty, and diversity of stakeholders, the more this experience applies.

This two-day course provides an introductory level of understanding of how to manage technical projects to maximize project success, within a set of constraints. The course establishes principles and exposes methods for managing to get the best out of people, individually and in teams.

This Managing Technical Projects course is designed for people who seek a working knowledge of how to best go about managing engineering projects, especially projects involving non-trivial engineering.

More information: https://www.ppi-int.com/training/project-engineering-management-training-courses/managing-technical-projects-2-day/

6. Medical Device Risk Management Course

Course Code: MDRM3D (P2330)

Duration: 3 full-days (8 hours each day) or 6 half-days (4 hours each day) with multiple breaks.

Delivery Format: PPI Live-Online™ and physical delivery (public & corporate).

Delivery Location: Worldwide (except Russia)

Trainer: Mr Bijan Elahi

Course Description: Medical Device Risk Management (MDRM) is a progressively more prominent topic in the medical device sector. Expectations by Regulatory bodies of medical device companies in producing quality, logical and defensible risk

management files are rising. It is incumbent on medical device manufacturers to convince the regulatory bodies that the benefits of a medical device outweigh its risks, and to ensure that this is actually the case, both for the benefit of society and for the protection of the medical device companies themselves.

This course teaches a disciplined systematic approach to the analysis, estimation, evaluation, and control of safety risks associated with medical devices. This method is explainable, logical and integrated. Application of formal risk management techniques can help predict and prevent serious harm to patients and losses to businesses.

This training course provides a comprehensive introduction to topics that are needed for successful management of safety risks of medical devices in conformance with the international standard ISO 14971:2019 Medical devices — Application of risk management to medical devices. The scope of risk management includes both pre-market product development, and post-market risk management.

The course, notwithstanding its medical device focus, is also suitable for any engineer or other professional seeking an understanding of techniques for managing risk inherent in the possibility of failure or misuse of technology.

More information: https://www.ppi-int.com/training/medical-device-risk-management-2-half-days/

7. Project Risk and Opportunity Management Course

Course Code: PROM3D (P038)

Duration: 3-Days - 8 .5 hours each day with multiple breaks

Delivery Format: PPI Live-Online™ (public & corporate). Physical delivery may also be possible.

Delivery Location: Worldwide (except Russia)

Instructors: Mr Robert Halligan, Mr Clive Tudge or Mr Alwyn Smit (subject to change)

Course Description: Project risk and opportunity management is a set of management techniques aimed at ensuring that actual and planned project outcomes at least coincide or are exceeded. As such, project risk and opportunity management are practiced by the great majority of project planners, project managers, project engineers and their staff. Risk and opportunity management influence nearly every facet of planning and conducting a project, or at least, they should do.

Risk and opportunity are different but intimately related concepts. A decision that minimizes risk in isolation may on the surface appear to be a good decision, but may in fact be a very bad decision when opportunity is factored in.

This course deals with that extra, formalized set of techniques that can be applied cost-effectively to manage risk and opportunity within projects that are unlikely to proceed to plan or better without specific focus on risk and opportunity. The majority of information technology, defence, aerospace and infrastructure projects above a few million dollars of value are in this category, as are many projects conducted for internal customers, and most product development projects.

More information: https://www.ppi-int.com/training/project-engineering-management-training-courses/project-risk-and-opportunity-management-3-day/

8. Requirements Engineering Course

Course Code: RASW5D (P007). Previously known as Requirements Analysis and Specification Writing.

Duration: 5-Days – 8.5 hours each day with multiple breaks

Delivery Format: PPI Live-Online™ (corporate). Physical delivery may also be possible.

Delivery Location: Worldwide (except Russia)

Instructors: Mr Robert Halligan, Mr Clive Tudge, Mr Alwyn Smit or Mr. Paul Davies (subject to change)

Course Description: Requirements analysis and specification writing are sciences practiced by many, mastered by surprisingly few. And yet, the payoff from achieving excellence in these areas is large. The three aspects: requirements management, requirements capture and validation, and specification writing, comprise the content of this in-depth course.

The requirements management content addresses requirements traceability and change management. The requirements analysis content addresses the techniques used to capture, validate and gain a complete understanding of system requirements originating in all stages of the system life cycle. The specification writing content addresses in detail the conversion of individual requirements into effective requirements specifications. The structure and language of requirements specification are addressed in detail.

A workshop approach is used extensively in the course, to maximize learning and practical application. Effectiveness of the techniques, collectively comprising a complete methodology, is independent of the domain of application, and independent of the specifics of the need. These techniques have been used on projects worldwide with great success.

The course is strongly activity oriented throughout, beyond the extensive workshops. The techniques of specification writing that are taught have been used to great effect in scenarios that include acquisition, supply, product definition (both hardware and software), enterprise internal projects, business analysis and diverse engineering projects, large and small.

More information: https://www.ppi-int.com/training/requirements-specifications-training-courses/requirements-analysis-and-specification-writing-5-day/

9. Requirements, OCD & CONOPS in Capability Development Course

Course Code: ROC5D (P958)

Duration: 5-Days – 8.5 hours each day with multiple breaks

Delivery Format: PPI Live-Online™ (public & corporate). Physical delivery may also be possible.

Delivery Location: Worldwide (except Russia)

Instructors: Mr Robert Halligan or Mr Alwyn Smit (subject to change)

Course Description: This course is a five-day immersion in the development of military capability, with a focus on problem definition, Operational Concept Description (OCD - how the capability and each element of its solution will be used) and concept of operations (CONOPS - how the capability outcome is to be achieved), and specification of technology items and related services that will form a part of the capability solution. For reasons explained in the course, a CONOPS may also be referred to as an Operational Solution Description (OSD).

The course content is easily transferable in application to any substantial business system, public infrastructure system, or other large undertaking involving people and technology as a part of the solution.

The training is consistent with a systems approach to problem-solving, as advocated by defence and other administrations worldwide. This is an interdisciplinary, collaborative approach to the engineering of system solutions (of any type). The approach aims to capture stakeholder needs and objectives and to transform these into a description of a holistic, life cycle balanced system solution. This solution will both satisfy the minimum requirements of the stakeholders and optimize overall solution effectiveness according to the values of the stakeholders.

More information: https://www.ppi-int.com/training/requirements-specifications-training-courses/requirements-ocd-and-conops-5-day/

10. SE-ZERT® Program Course (CTI)

Course Code: SEZ12D (Level B (C012B-1) Level C (C012C-1))

Duration: 12-Days

Delivery Format: CTI Live-Online (public & corporate)

Delivery Location: Worldwide (except Russia)

Instructors: Mr Michael Gainford or Mr Paul Davies (subject to change)

Course Description: SE-ZERT® is a personal systems engineering competency program of the German Chapter of INCOSE, GfSE e.V. together with the TÜV Rheinland®. The program conforms to the ISO/IEC 17024 standard for personal certification. CTI, as an accredited SE-ZERT® training provider, supports participants in preparation for the certification, involving an examination administered by the SE-ZERT® program committee that verifies the participant's knowledge.

SE-ZERT® is intended for individuals with a technical qualification such as technician, Bachelor degree, Master degree or similar degree. The program provides, for enterprises, a further qualification for employees of the enterprise by means of a program incorporating mandatory corporate or public training delivered by an accredited SE-ZERT® training provider.

According to the bylaws for SE-ZERT®, a goal of the GfSE e.V. is to create a systems engineering standard and language and a uniform occupational profile. The SE-ZERT® Program involves four qualification levels, each building on the previous.

Level D is for students from licensed universities only. The entry level C has the target to work within a team. Level B builds upon level C with the further outcome of applying additional knowledge defined for level B. Level B also includes playing a role in leading small projects. Level A has the capability goal of independently creating problem statements, solutions, justifications, conclusions, interpretations and judgements, and being able to effectively communicate these to others.

More information: https://certificationtraining-int.com/cti-se-zert/

11. Systems Engineering Overview Course

Course Code: SEO3D (P884)

Duration: 3-Days – 8.5 hours each day with multiple breaks

Delivery Format: PPI Live-Online™ (corporate only). Physical delivery may also be possible.

Delivery Location: Worldwide (except Russia)

Instructors: Mr Robert Halligan, Mr Alwyn Smit, Mr Clive Tudge, Mr John Fitch, Mr Michael Gainford (subject to change)

Course Description: Systems engineering can be thought of as the problem-independent and technology-independent principles of, and methods for, the engineering of systems, based on systems thinking. This 3-day Systems Engineering short course provides an overview of the principles and methods of systems engineering: an interdisciplinary, collaborative approach to the engineering of system solutions, adopted by leading enterprises worldwide, that aims to capture stakeholder needs, objectives and values, and to transform this problem definition into a holistic, life-cycle balanced system solution. This solution must satisfy the imperatives and should maximize overall project and solution effectiveness according to the values of the stakeholders who are being served.

The course is suited to those who need familiarity with systems engineering principles and methods, without actually practicing them to any significant degree. Those in roles that interface with systems engineering activities

will find the course especially relevant. We have found that is not possible to teach systems engineering in a three-day course to those who have to practice it to any substantial degree. Decades of experience in delivering systems engineering training support this view. However, an objective of achieving a common understanding of the nature and principles of systems engineering, viz. the systems approach to the engineering of systems, is certainly achievable.

PPI recommends that project managers of substantial technical projects take PPI's full, 5-day intensive systems engineering training (SE5D). The project manager is the engineer of the project system and also needs a thorough understanding of the technical activities being managed. This overview course will be a good option for managers of small technical projects.

In course design and delivery, as you would expect, examples are used verbally in delivery, formally in courseware, and in the workshops. Verbal examples are always chosen to match the application domain(s) of the participants to the maximum extent possible. Examples in courseware are diverse. The workshops, which play the major role in learning, relate to a single workshop system, the application of which anyone can understand. The design workshops for the same system are selected to match a diverse range of technology backgrounds.

At the conclusion of the course, participants are expected to have a common understanding of SE principles, process elements with which to implement those principles, and their relationships. The process elements are requirements capture and validation (requirements analysis), physical and logical design, effectiveness evaluation and decision (the conduct of trade-off analysis), requirements specification, system integration, verification, validation, and systems engineering management. All of the above is within the context of typical life-cycle phases, such as problem definition, solution development, production, utilization, support and disposal. The different development strategies of waterfall, incremental, evolutionary and spiral are emphasized, as is the practice of concurrent (simultaneous) engineering.

As a result of their increased understanding, participants will be better able to interact with engineers and engineering activities and play a greater role in successful teams.

More information: https://www.ppi-int.com/training/systems-engineering-training-courses/systems-engineering-overview-3-day/

12. Systems Engineering Course

Course Code: SE5D (P006)

Duration: 5-Days – 8.5 hours each day with multiple breaks

Delivery Format: PPI Live-Online™ (public & corporate). Physical delivery may also be possible.

Delivery Location: Worldwide (except Russia)

Instructors: Mr Robert Halligan, Mr John Fitch, Mr Alwyn Smit, Mr Clive Tudge or Mr Michael Gainford (subject to change)

Course Description: Systems engineering is an approach to engineering that has been proven to substantially reduce costs, shorten development timeframes and increase stakeholder satisfaction. This 5-day intensive course is intended for anybody who performs or manages significant engineering roles, whether or not under the name "systems engineering", and regardless of years of experience. The course duration is set at the minimum duration of training necessary to bring about the knowledge and understanding amongst practicing engineers and managers that triggers real improvement. Our experience is that shorter duration courses delivered to practicing

engineers convey knowledge but not understanding, and then nothing changes in the workplace! The investment is wasted.

This course is strongly focussed on problem definition and solution development principles and methods, and other practice areas, the application of which brings about immediate and substantial improvement in engineering performance.

This course is ideal for formal systems engineering training in that it leads the participant through the way of thinking and acting that is systems engineering, regardless of application domain, technology orientation and business context.

The course commences with broad concepts of a systems approach to the engineering of systems (based on systems thinking) and progressively adds detail. Concepts are introduced with a very simple (and amusing) system incorporating a model-based approach (MBSE), and then re-applied to the engineering of a larger, more complex system. A single system is then taken in workshop format through all process areas, with a substantial MBSE orientation, so that the participant completes the course equipped with an understanding of, and some experience via substantial workshops in, effective, efficient, actionable methods based on sound principles.

The transformation of a solution description into an actual solution through the activity of system integration is of course an integral part of systems engineering and is also well addressed, supported by system verification and system validation (verification and validation of all work products are integrated thoroughly throughout the training).

Embedded within the training approach are the principles and methods of model-based systems engineering (MBSE) in the problem (requirements, MOEs, etc) and solution domains, with an emphasis on functional modelling. State-based modelling is also relevant and is the subject of one requirements workshop. The result is a high degree of learning of sound principles and fundamental relationships, as evidenced by workshop work products, together with the extensive commendations received from participants and their enterprises, and the median rating of the course by delegates as excellent.

At the conclusion of the course, participants will have the knowledge and understanding of overall systems engineering principles, concepts, process elements and their relationships, and actionable methods, as relevant to the individual's role. We repeatedly receive feedback that adoption of these principles and practices has improved the results of the projects of clients, the success of client enterprises and improved the lives of their people.

More information: https://www.ppi-int.com/training/systems-engineering-training-courses/systems-engineering-5-day/

13. Systems Engineering Management Course

Course Code: SEM5D (P1135)

Duration: 5-Days – 8.5 hours each day with multiple breaks

Delivery Format: PPI Live-Online™ (public & corporate). Physical delivery may also be possible.

Delivery Location: Worldwide (except Russia)

Instructors: Mr Randall Iliff, Mr Clive Tudge, Mr Alwyn Smit, Mr Robert Halligan or Mr Michael Gainford.

Course Description: Over many years, experience has shown that projects have difficulty in delivering solutions to stakeholders on time, on budget and satisfying stakeholder needs. The greater the problem complexity, solution complexity, novelty and diversity of stakeholders, the greater the challenge has proven to be.

This 5-day Systems Engineering Management course provides in-depth coverage of how to manage engineering projects to maximize project success, within the project's given constraints. The course establishes sound principles and provides effective methods to successfully manage engineering projects and for getting the best out of people, individually and in teams

This Systems Engineering Management course will most benefit people who seek substantial knowledge and understanding of how to best go about managing technical projects, even more so those larger projects involving complex engineering.

The course first devotes about 15% of course time to an overview of systems engineering, with a significant "what this means for engineering management" orientation to the overview. The remainder of the course is entirely about managing the engineering, not about performing it.

The basics of managing anything are, of course, addressed, and addressed thoroughly – planning, organizing, assessing and exercising control, all placed in an engineering project context. So too are the specifics most commonly associated with managing engineering projects – including alternative development strategies and when to use them (waterfall, incremental, evolutionary including agile, spiral), requirements management, managing design complexity, interface management, configuration management, knowledge management, engineering specialty integration, and risk and opportunity management.

For engineering projects, management and leadership go hand-in-hand. Whilst some people are born leaders, leadership can also be taught. The course reflects the need for engineering management to also inspire and cultivate a team culture of personal responsibility, and accountability of team members to the team, not only to a manager.

The course will be of value to those individuals who plan, manage, control, specify and/or support the development or acquisition of products, including software products, or systems. The course will be of particular value to program managers, project sponsors, project managers and their planning advisers, project chief engineers, engineering managers, technical team leaders, systems engineers, software systems engineers, engineers of all other types, stakeholders in the system or product being developed such as users and planners, and those responsible for the development of policy and processes in the fields of engineering management, development, acquisition, and supply. The course will benefit anyone who aspires to an engineering or technical project or program management role.

This course is delivered using a balanced combination of video, presentations, workshops, games, quizzes, and discussion sessions. The workshops and discussions are focused on putting into practice the management techniques covered in the presentations, and the lessons to be learned from the videos and other activities. The workshop sessions are used extensively to reinforce learning and to contribute to the development of understanding.

The result is a high degree of learning, as evidenced by workshop work products, the extensive commendations received from participants, and the median rating of the course by participants as excellent or very good.

More information: https://www.ppi-int.com/training/systems-engineering-training-courses/systems-engineering-management-5-day/

