Logistics Management Associates

Presents

Supportability and Logistics

Training Course Catalog

January 2020

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Table of Contents

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Product Support Analysis

A Five-day Workshop

What the Workshop will achieve for you

The course is aimed at the logistics professional who needs to broaden their scope of knowledge on diverse logistics-related topics. The course explores all aspects of logistics and support issues of contemporary programs. The objective of the workshop is to expand the scope of understanding of the attendees in all facets of PSA including: the changing role of logistics in the product life cycle, support engineering, successful implementation, decision making, modeling, support and management.

Session 1: Applying PSA - The Tool for System Readiness

The changing role of logistics in the product life cycle - the real world of ILS and its challenges. ILS/PSA and product life cycle phases - the new ILS perspective; decisions impacting ILS. The new PSA systems engineering perspective - engineering programs and analysis; focus on Product Support Analysis; supportability logistics engineering; the expected results of this working tool.

Session 2: PSA - Equals Logistics Success

The PSA concept - putting logistics into systems engineering. Setting the goals for your PSA program - identifying problems early to influence design for support; developing support resource requirements; developing the logistics database. Setting up the PSA Program, establishing a program overview; tailoring the PSA program; PSA requirements documents; the impact of PSA on product support and life cycle cost.

Session 3: Support Engineering - Reliability, Maintainability, Testability and Availability

Reliability Engineering - impact on logistics - the reliability program - program tasks, reliability analyses and analyses and testing. Integrating maintainability design with the logistics maintenance program - tasks, analyses and demonstrations. Testability impact on logistics, Basing requirements on availability - inherent, achieved and operational availability; reliability centered maintenance (MSG-3).

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Session 4: Successfully Implementing SEA

Influencing design and reducing life cycle costs The Use Study - establishing a common knowledge baseline; what should a Use Study Report cover- Standardization - determining what can be used as is; identifying change; standardization issues for design. Comparative Analysis - establishing a baseline comparison system; using history to project future supportability parameters; identification of support problems; identification of cost drivers; interfacing with engineering analyses; focusing the PSA effort. Technology Opportunities - solving support problems through technology; the impact of changing technologies, Supportability Design Factors - developing logistics design criteria; influencing the design for support; supportability issues for the product specification.

Session 5: PSA for Decision Making

Functional Requirements Identification - quantifying what the system must do; quantifying what support is required. System Support Alternatives - how can support tasks be accomplished? Developing support plans. Evaluating Support Alternatives - the trade-off analysis process; influencing the design through trade-off analysis; seeking analysis approaches; detailed trade-off analysis procedures.

Session 6: Logistics Modeling for Trade-Off Analysis

Modeling concepts and techniques, determining when modeling is necessary; how to select appropriate models. Comparison of models for: repair level analysis, spares analysis and life cycle cost analysis - simple, quick models versus complex models.

Session 7: Supportability Engineering Exercises

Using Life Cycle Cost as part of the PSA process - how to perform early LCC; thinking through logistics issues; understanding what really matters. Evaluating and determining the right design rules - identifying the rules for design; evaluating which rules apply; defending the answers.

Session 8: Developing Support Resource Requirements

The Task Analysis Process, what new or critical resources are required; personnel and training requirements; identifying spares requirements; how task

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analysis must drive other ILS efforts. Early Fielding Analysis - will the system cause support shortages; how will the system impact other systems; identifying critical resources; planning for alternatives.

Session 9: Recording the Results - The Logistics Product Data (LPD)

Developing your own analysis techniques for your data; new demands for sophisticated databases - dramatic impacts on your computer needs; the relational databases; LPD databases. Using the LPD summary reports.

Session 10: Managing the Program

Evaluating the progress and results of your PSA program - determining what and when to evaluate; supportability test, evaluation and verification; developing TEV strategies; identifying problems and determining corrective action; one time versus continual evaluation; post development assessment.

Session 11: Planning and controlling the Program

The PSA plan - developing and following a realistic, usable plan. Addressing the real logistics issue in the PSA review; logistics issues for design and program reviews.

Session 12: Tailoring and Implementing PSA

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Logistics Product Data (LPD)
A Four-Day Course

Course Overview: An intensive, hands-on course of instruction, not an overview, but a nuts and bolts marathon. This is a fast-paced course of instruction. It is assumed that attendees have prior knowledge of the Logistics Support Analysis (LSA)/Product Support Analysis (PSA) process and some background in logistics programs. The course is a very detailed presentation of every LSAR Data Table/LPD Data Entity, Data Element (DED) and LSA Summary Report. Due to the level of detail the class size has been limited to 20 attendees to maximize instructor to attendee ratio. Each attendee will receive a complete set of class notes and a current copy of LSAR/LPD requirements which will be the primary reference throughout the course. At the completion of this course, students will have a real, usable understanding of the LSAR/LPD, how it is created, how it is used and how to control its growth and cost. This will provide invaluable experience to be applied immediately. It is gained knowledge that students cannot afford to miss.

Learning Outcomes: At the completion of this course, student will be able to:

Independently create a project LSAR/LPD
Import and assess Contractor created LSAR/LPD
Discuss the application and value of each LSAR/LPD data entity
Generate all LSA Summary Reports (TA HDBK 0007-1)
Participate in defining and contracting for CDRL LSAR/LPD requirements
Use PowerLog J2 LPD software
Understand and participate in a Planned Lifecycle Management (PLM) Integrated Data Environment (IDE)
Use the LSAR/LPD for sustainment planning and management

Course Outline:

Lesson 1: The LSA/LSAR Program

- Review of the Logistics Support Analysis/Product Support Analysis process
  - MIL STD 1388-1A – LSA
  - TA STD 0017 – PSA
- Introduction to the Logistics Support Analysis Record/Logistics Product Data
  - MIL STD 1388-2B - LSAR
  - GEIA STD 0007 – LPD

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- Overview of the LSAR data tables/LPD data entities
- Discussion of data elements and data codes
- Starting the Process - Input Requirements
- Analyzing the design
- Use Study /Application Assessment
- LSA Control Number development
- LSA Candidate List preparation

Lesson 2: Creation of the LSAR/LPD

An in-depth excursion through every LSAR data table/LPD data entity which discusses how each data element requirement may be satisfied, where the information originates, how to arbitrate the correct responses and linking the final answers to the analysis process.

- Setting up the Project within the LSAR
- Preparation of PSA requirements data
- Preparation of PSA R&M data
- Preparation of PSA maintenance data
- Preparation of PSA support equipment data
- Preparation of PSA UUT data
- Preparation of PSA facilities requirements data
- Preparation of PSA skills requirements data
- Preparation of PSA resource requirements data
- Preparation of PSA provisioning data
- Preparation of PSA personnel data
- Preparation of PSA transportability data
- Preparation of PSA munitions data

Lesson 3: LSA Summary Reports

Detailed discussion of the LSA Summary Report process concentrating on the purpose and intent of each individual report and identification of uses of the information derived. Every report contained in MIL STD 1388-2B and TA HB 0007-1 is discussed in detail to determine the logic of the report, the data elements required to product the report and its applicability to specific situations.

- Discussion of every summary report
    - Key Data Elements required to produce the report
    - Discretionary Data Elements that enhance the information
    - Optional Data that may be useful

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- When and why to use each report
  - When a report should be used
  - Purpose of the report
  - Final or Work-In-Progress Report
- Using Reports
  - Improving system design
  - Quantifying Through Life Support requirements
  - Quantifying PBL liabilities
  - Determining Physical Logistics Packages

Lesson 4: Business issues of the LSAR/LPD

- LSAR/LPD Database Software
  - PowerLog J2
  - SLICwave
  - Eagle
  - Omega-PS
- Tailoring the LSAR/LPD
  - GEIA HB 0007
  - DD Form 1949-3
  - Attribute Selection Sheet
- LSAR/LPD Data Selection Criteria
- LSAR/LPD Data Applicability Tailoring
- LSAR/LPD Tailoring Software
- Preparation of an LSAR/LPD Style Guide
- Contractual issues
  - Writing a good PWS/SOW requirement for LSAR/LPD
  - CDRL Requirements
  - LSAR/LPD Data Review Process
  - Delivery and Acceptance
  - Rejecting Non-Conforming Data

Lesson 5: LSAR/LPD Practical Exercises

The LSAR/LPD Practical Exercises are performed in syndicate groups using laptop computers with the latest version of PowerLog J2 installed.

Practical Exercise #1

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The Students participate in an Instructor-led Practical Exercise. The Practical Exercise will use an LPD software package, PowerLog J2, to create an actual LPD based an Instructor-provided system. The LPD will then be used to demonstrate how to generate LSA Summary Reports. The focus of this practical exercise is:

- How to build an LSAR/LPD
  - Mandatory Data Elements
  - Discretionary Data Elements
  - Avoiding Useless Data
- How to generate reports
  - Selection Criteria
  - Optional Features
  - Multiple generations
- Preparation of ad hoc reports

Practical Exercise #2

The Students participate in an Instructor-led Practical Exercise. The Practical Exercise will simulate a situation where a Contractor has submitted an LSAR/LPD per a CDRL requirement for review by Government program staff. The Instructor will guide students through the process of data review procedures to ascertain the quality and usability of the Contractor-developed LSAR/LPD. This Practical Exercise will use an actual LPD from a recent DoD program. The focus of this to provide students with reasonable and effective a step by step methodology for review of an LSAR/LPD.

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Performance Based Logistics
A 5-Day Course of Instruction

Course Focus: The presentation addresses the application methods of Performance Based Logistics through contractor logistics support to contemporary programs. The discussion includes complete, limited, selective and interim PBL options. Each option is discussed with examples of successes and failures as an aid to understanding the possible opportunities and limitations for their adoption on future programs.

Course Overview: The presentation provides a balanced view of PBL for the Government and the Contractor. Beginning with a discussion of the concepts and underlying issues which have evolved into the current trend of PBL, and leading on to consider the relevant business issues, the final part of the course addresses the establishment of performance objectives, performance monitoring, incentives and penalties. Each aspect of the course is illustrated using experience on actual Programmes. The course provides a balanced view from the standpoint of the Government organization requiring PBL and that of the Contractor performing PBL. The course is designed for Logistics Professionals who require in-depth knowledge of PBL and those who are or may become ILS Managers, and also Commercial, Contract, and Bid Managers, who need to understand how PBL should be formulated, implemented and managed.

This course includes three extensive practical exercises which students perform in syndicates.

Practical Exercise #1 - Analysis of how the design of a system dictates support requirements during in-service and how improvement of supportability characteristics can have a significant impact on support options.

Practical Exercise #2 – Estimation of the scope of a PBL requirement.

This exercise provides students a methodology for estimating the size of a PBL requirement, the workload, necessary support resources and potential infrastructure implications.

Practical Exercise #3 – Estimation of the cost for performing PBL.

A unique exercise for estimation of the potential costs for performing PBL early in the acquisition cycle to allow trade-off analyses to determine the most reasonable support approach for a system.

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Students receive copies of the models used for these exercises.

Course Learning Objectives:

- Understand the PBL process
- Understand the ramifications of PBL
- Design, manage and implement a workable PBL Solution
- Identify PBL Requirements
- Cost PBL
- Tailor a Contractor organization to meet PBL requirements
- Establish realistic PBL performance objectives
- Monitor PBL performance
- Agree appropriate PBL incentives and penalties
- Identify the critical issues for a viable PBL contract
- Understand the critical aspects for Contractors to be successful and profitable
- Ensure the Government receives value for money

Course Outline:

Lesson 1: Logistic Support Concepts

Lesson 2: Complete or Limited PBL

Lesson 3: Incremental PBL for Life

Lesson 4: Identification of PBL Requirements

Lesson 5: Modelling PBL

Lesson 6: The Contractor's PBL Capability

Lesson 7: The PBL Organizations

Lesson 8: The PBL Contract

Lesson 9: Administering the PBL Program

Lesson 10: Reporting Requirements

Lesson 11: Configuration Management

Lesson 12: Practical PBL Issues

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Reliability, Availability and Maintainability
A Four-day Course

Many systems in use today are not performing as intended, nor are they cost- effective in terms of their operation and support. In dealing with the aspect of cost, experience has indicated that a large percentage of the total cost over the life cycle of a given system can be attributed to maintenance and support-related activities accomplished throughout the system utilization phase. Further, these costs are likely to increase in the future as systems are being upgraded on a continuous basis through the introduction of new technologies and the life cycles for many of these systems are being extended, requiring that a more extensive maintenance and support infrastructure be in place for longer periods of time. This is happening at a time when available resources are dwindling and international competition is increasing worldwide.

Course Overview:

When analyzing "cause-and-effect" relationships, much of these "downstream" costs can be traced back to the design and management decisions made during the early stages of conceptual design; i.e., decisions pertaining to the selection of a new technology, the selection of materials, equipment packaging schemes, the selection of software which cannot be maintained, the selection of commercial-off-the-shelf (COTS) items, the selection of unreliable components, and so on. Many of these and related decisions made during the early stages of system development can have a great impact on the maintenance and support requirements for the system later on; i.e., impacting the frequency of maintenance and the resources consumed in the accomplishment of such. Experience has indicated that these "downstream" impacts have not been addressed from the beginning, and there has been a tendency to "design-it-now-and-fix-it later" which, in turn, has been a rather costly approach.

More specifically, the characteristics that need to be "built into" and inherent within the system design configuration from the beginning are those having the greatest impact on system utilization and support later on -- among these are the characteristics dealing with system *availability (A), reliability (R)* and *maintainability (M).* “Availability” is the overall measure of being able to use a system when required and the responsiveness of the required support infrastructure to sustain its operational capability. "Reliability" has to do with system operational availability (having the system available to perform the necessary functions when, where, and for as long as required), and "Maintainability" relates to the ability keep a system operating (through the performance of periodic scheduled maintenance as required) and/or to

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return a system to full operational status in the event of failure (through the performance of corrective maintenance). *Maintainability (M)* is a design characteristic, while maintenance is the result of design. In the past, these characteristics have been addressed "after-the-fact" (not considered from the beginning along with other key performance characteristics), and *RAM* have each been dealt with on a relatively *independent* basis (not considered as being highly interactive and closely related). Yet, not only do these characteristics interact, one on another, but must be addressed concurrently and on an integrated basis in order to attain the higher level of system availability desired. Further, the degree of the incorporation of *RAM* characteristics in system design can have a great impact on the total cost-effectiveness of the system over its life cycle.

What the Workshop will achieve for you

The course is aimed at the professional who needs to broaden their scope of knowledge on RAM. The course explores all aspects of design and support issues of contemporary programs. The objective of the workshop is to expand the scope of understanding of the attendees in all facets of RAM including: its changing role in the product life cycle, support engineering, successful implementation, decision-making, modeling, support and management.

Who should attend this Course

Invaluable for both novice and intermediate logisticians and supportability engineers, design engineers, systems engineers, program managers and any others involved in development, design or procurement of systems.

Course Description:

This course introduces the subjects of *availability, reliability* and *maintainability*, primarily from an applications perspective. The material includes an introduction to RAM *terms and definitions*, the development of RAM *models* and the accomplishment of RAM *analyses*, and the application of RAM *tools and techniques in the design of systems.* Not only are the characteristics of reliability and maintainability covered, but also their interrelationships with other design parameters and their impact on total life-cycle cost. This is accomplished within the context of the overall systems engineering process. More specifically, the course will include the following topics:

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COURSE OUTLINE:

COURSE OVERVIEW

What are Reliability, Availability and Maintainability?
The History of RAM
Current Problems
Value of RAM
Complexity
RAM Terminology

DOD RAM POLICY AND PROGRAM REQUIREMENTS

Policy and Guidance
RAM Program Documentation
Contractual Requirements
Program Organizational Direction
Design Principles

MISSION PROFILES

Introduction
Environment
Stress Levels

R&M ALLOCATIONS

Introduction
Allocation

RELIABILITY PREDICTIONS

Introduction
Reliability Prediction Techniques

MAINTAINABILITY AND AVAILABILITY PREDICTIONS

Introduction
Maintainability Prediction Technique
Availability Prediction Technique
System Effectiveness

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RELIABILITY DESIGN APPROACHES AND CRITERIA

- Introduction
- Developing Design Criteria
- Examples of Successes and Failures
- Determining What is Really Needed

MAINTAINABILITY DESIGN APPROACHES AND CRITERIA

- Introduction
- Maintainability Engineering
- Design Criteria Concepts
- Measurable Criteria

TESTABILITY DESIGN APPROACHES AND CRITERIA

- Introduction
- Testability Engineering
- Fault Detection
- Fault Isolation
- Testability Analysis Sequence
- Manual Diagnostics

COST SAVINGS/PROGRAM MANAGEMENT

- Introduction to Cost Savings
- Cost Savings Over the Product Life Cycle
- Cost and Quality Trade-off
- Cost Justification
- Repair versus Throwaway
- Translation of Requirements
- Design Assessment Planning
- Tracking the Design Process
- The Iterative Design Process
- Timeliness

RELIABILITY VERIFICATION

- Introduction
- Reliability Testing and Growth
- Selecting the Appropriate Method

MAINTAINABILITY VERIFICATION AND DATA COLLECTION

- Introduction
- Maintainability Testing

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RELIABILITY PREDITION OF SOFTWARE

- Introduction
- Prediction Methods
- Limitations on Usage
- Software Reliability Estimates versus Predictions

DEVELOPMENT TESTING - RELIABILITY GROWTH

- Introduction
- Reliability Testing and Growth
- Necessary Data
- Duane Reliability Growth Model

RELIABILITY CONSIDERATIONS FOR NON-DEVELOPMENTAL ITEMS (NDI)

- Background
- Purpose and Application
- RM&A Requirements
- Obsolescence

AVAILABILITY FROM CONCEPT THROUGH SUSTAINMENT

- Inherent Availability
  - Definition
  - Uses
  - Example Calculations
- Achieved Availability
  - Definition
  - Uses
  - Example Calculations
- Operational Availability
  - Definition
  - Uses
  - Example Calculations

Students participate in a 16-part Practical Exercise which demonstrates the application of each course topic on a system. A computer/laptop with Microsoft Excel is required for each syndicate group to complete these exercises.

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Fundamentals of Logistics

A four day workshop introducing Logistics

What the Workshop will achieve for you

The course is aimed at the new logistics professional who needs to understand the basic concepts of logistics technical disciplines and logistics resource development techniques. Presented in a fast-paced situational study format, the course explores all aspects of logistics and support issues of contemporary programs. A must for both government and commercial viewpoints. At the completion of the workshop, attendees will have gained a valuable insight into the problems, challenges and potential solutions encountered on virtually every one of today's programs.

Program Outline

- Logistics Concepts
- Logistics Technical Disciplines
- Product Life Cycle
- Logistics Life Cycle
- Acquisition Life Cycle
- Maintenance Planning
- Supply Support
- Spares Assessment Modelling
- Spares Pipeline Management
- NATO Codification
- Packaging, Handling, Storage & Transportability (PHS&T)
- Technical Documentation
- Technical Document Requirements Identification
- Personnel Requirements Identification
- Manpower Utilization Planning
- Training Needs Analysis
- Training Planning and Development
- Support and Test Equipment

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- Facilities
- Supporting Analyses
- Reliability Engineering
- Maintainability Engineering
- Testability Engineering
- Availability
- Systems Safety Engineering
- Human Factors Engineering
- Product Support Analysis
- Logistics Product Data

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LCC and LORA

A four day practical Workshop on Life Cycle Costing & Level of Repair Analysis

What the Workshop will achieve for you

The LCC and LORA process will be discussed in detail to determine how and why these techniques are applied. An intensive study of modeling techniques will provide an in depth understanding of how LCC and LORA models function. The process to be used in selection and validation of LCC and LORA models is provided with detailed examples of how any model must be evaluated prior to use. This is an intensive Workshop with more than a total of 24 hours of student hands-on development and use of models. Prior experience with LCC and LORA is not required, but students are expected to be comfortable in the use of computers and familiar with spreadsheet operations.

Who should attend

This Workshop is designed for managers, logistics engineers, design engineers, systems engineers, analysts and other persons holding positions responsible to perform, manage or contract for LCC and LORA. The Workshop is suitable for both government and contractor program managers and also contract managers who procure or deliver LCC and LORA.

Workshop Description

Day 1

- LCC and LORA concepts
- LCC modeling
- Costing and its uses
- Supportability engineering modeling
- Resource optimization modeling
- LCC as part of PSA

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- LCC modeling concepts
- Level Of Repair Analysis concepts
- LORA as part of LCC
- LORA within PSA
- Applications and limitations of LCC and LORA
- Practical Exercise

Day 2 LCC Modelling Techniques

Students participate in analysis of an LCC model focusing on each cost element and its application to the LCC process. Then, students will use the model to determine the cost implications of design early support decision. New LC2 Model Version 105a will be used to illustrate spreadsheet modelling techniques.

Day 3 Using LCC Models

Students use a resource optimization model to determine the cost implications of support decisions on LCC and the use of sensitivity analysis and Monte Carlo simulation. The Cost Analysis Strategy Assessment (CASA) model Version 2002 will be used throughout this exercise.

Practical Exercises

Day 4 Using LORA Models

Students use a generic LORA model to determine the cost effective maintenance policy for an example military system. Workshop concludes with ground rules for model selection, model validation techniques and contractual implications of LCC and LORA.

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Maintenance Engineering Analysis

A four day Workshop on how to physically perform analysis tasks

What the Workshop will achieve for you

This workshop is designed for persons who are responsible for doing, supervising, managing, reviewing or accepting maintenance engineering analysis. The course is specifically applicable to those with hands-on involvement with performing or supervising maintenance task analysis. It is also applicable for persons responsible for developing requirements for spares, support equipment, training needs analysis and technical documentation. Upon completion of this workshop, students should be capable of applying maintenance engineering analysis techniques to any equipment project.

This is a real workshop. Students should be prepared to participate in hands-on practical exercises, many of which will be outside the classroom. Therefore jeans should be worn. Suits, jackets and ties will be inappropriate. Students are encouraged to bring their own common tools, e.g. screwdrivers and spanners. A PC notebook is recommended for taking notes during practical exercises.

The Workshop Format

The Maintenance Engineering Analysis process is universally accepted as the single most effective method of assessing the adequacy of a design to be maintained and developing an efficient and cost effective support infrastructure for a system. The MEA workshop is a “get your hands dirty” course on how to physically perform maintenance engineering analysis. The techniques presented in the workshop are used in virtually any industry including defense, automotive, aviation, petroleum, mining, telecommunications and industrial manufacturing facilities. The workshop addresses each step of the process from definition and identification of maintenance significant items, to definition and identification of maintenance tasks, and then with complete maintenance task analysis. The results of each step will be recorded in a database for future analysis and manipulation. The workshop will culminate with task validation. On completion of this workshop, students will be adequately prepared to apply immediately the techniques to their own organization’s products.

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Program Outline

Session 1

- Overview of the Maintenance Engineering Analysis Process
- Establishing the Framework for Maintenance Engineering Analysis
- Definition of Maintenance Significant Items
- Definition of Maintenance Tasks
- Task Taxonomy
- Establishing a Hierarchy of Maintenance Tasks
- Anatomy of a Maintenance Task
- Preparation for Maintenance Task Analysis
- Performing Realistic Maintenance Task Analysis
- Linking Resources to Tasks
- Shortcuts to Success
- Using Task Referencing
- Recording the Results of the Maintenance Engineering Analysis
- Implications of Safety and Human Factors Engineering

Session 2 & 3

Practical Exercises – Workshop Syndicates
Each syndicate will perform complete maintenance engineering analysis for various items provided by the instructor. Included will be representative examples of mechanical and electronic equipments.

Session 4

- Analysing the results of Maintenance Engineering Analysis
- Proper Task Validation Techniques
- Task Validation Practical Exercise

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Applied Systems Engineering for Logisticians

A Two-Day Course

Course Description: Today's complex systems present difficult challenges to develop. From military systems to aircraft to environmental and electronic control systems, development teams must face the challenges with an arsenal of proven methods. Individual systems are more complex, and systems operate in much closer relationship, requiring a system-of-systems approach to the overall design. This two-day workshop presents the fundamentals of a systems engineering approach to solving complex problems. It covers the underlying attitudes as well as the process definitions that make up systems engineering. The concept presented is a research-proven combination of the best existing standards and is aimed at project leaders, technical team leaders, engineers, and others participating in system development.

Course Outline

- Systems Engineering Concept
- Requirements Engineering
- Unwritten Laws of Systems Engineering
- Systems Thinking
- Developing and Assessing Operational Requirements
- Defining Supportability and Logistics Design Attributes
- Functional Identification and Traceability
- Integrated Engineering Process
- Design to Cost Techniques
- Design to Availability Techniques
- Systems Engineering for Supportability Success
- Cost as an Independent Variable
- Engineering for Availability
- How to successfully participate in Design Reviews (SRR, SSR, PDR, CDR)
- Systems Engineering on Off the Shelf Programs
- Hardware and Software Design Instructions
- The Specification's Specification
- Creating the Limits and Criteria for Measurement
- Modeling the Engineering Enterprise
- Quality Management of the Enterprise
- Requirements Configuration Management
- Sustaining Engineering Practices
- Systems Engineering Management Planning

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Objectives of the Course

This course is aimed at those individuals who require detailed information on the newest techniques in product development through integrated systems engineering. The course provides the basic concepts and processes employed by today's most successful organizations to produce state of the art products to meet new and challenging circumstances. The techniques presented include the latest ideas for research and development think-tanks in the automotive and aviation industries. Examples will be provided for each topic. Mathematical calculation methods are provided where appropriate to illustrate application of theories. Systems engineering procedures developed by known successful organizations will be presented.

Students are provided a proprietary fifteen page design review checklist as a guide to critically assessing the supportability and logistics characteristics of an evolving or in-service system design.

Target Audience

Personnel working in any sort of system development, project leaders and In-Service representatives, key technical members in a product development team, personnel needing familiarity with practical and currently applicable SE methods to facilitate Government oversight: Acquisition Logisticians, Logisticians providing Design Interface product support, RAM, and Configuration Management.

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Management of Product Support

A Five day practical Workshop for Product Support Managers

What the Workshop will achieve for you

This Workshop on Integrated Logistics Support and Product Support Analysis provides the attendee with an in-depth understanding of the detailed requirements found in today's Government programs. These requirements equate to lost time and added expense if not properly planned and executed.

The objective of the workshop is to expand the scope of the understanding of the attendees to include all facets of identification, definition and formalization of ILS and PSA requirements. An intensive four-day Practical Exercise based on actual military programs will provide attendees with a real world situation for developing their skills.

This is a true workshop. Attendees, who should already have knowledge of ILS, are urged to bring lap computers, pre-formatted disks, pocket calculators, notebooks and preferred writing instruments. Previous attendees have spent an average of 45 hours in working groups in class and on evening assignments over the course of the four days.

Who should attend the Workshop

Invaluable for Project Managers, Technical Directors, Product Support Managers and those involved in preparing request for proposals and the proposal response for contracts in which Integrated Logistics Support and Product Support Analysis requirements are included.

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Workshop Format

Session 1: Concepts of ILS

Session 1 introduces the concepts of ILS by systematic development through the 21st Century of logistics technical disciplines and the surrounding management infrastructure that has evolved culminating with current standards and specifications for ILS.

- History of Logistics
- Operational Logistics
- Acquisition Logistics
- Logistics Technical Disciplines
- Integrated Logistics Support
- Product Support Management
- Product Support Analysis
- Logistics Product Data

Session 2: Related Engineering Activities

Session 2 develops the integrated engineering environment of today's programs by highlighting the related engineering subjects and how their activities influence or support logistics analyses and products.

- Systems Engineering
- Design Engineering
    - Reliability Engineering
    - Maintainability Engineering
    - Testability Engineering
    - Safety Engineering
    - Human Factors Engineering
    - Configuration Management
- Requirements Definition

Session 3: Contemporary Procurement Practices

Session 3 describes current government procurement policies and practices. Contemporary programs are used to illustrate each procurement option. Students

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working syndicates develop implementation criteria for typical programs.

- Design Programs
- Off the Shelf Programs
- Upgrade/Modernization Programs
- Integration Programs
- Collaborative Programs

Session 4: Managing Development the Support Package

Session 4 gives and in depth description of the methodology for developing the support package for the user as prescribed in current standards. This session includes using the LPD to create and validate the support package, and assuring the configuration of the support package matches the configuration of the system.

- Physical Logistics Development and the LPD
- Configuration Control
- Supportability Assessment
- Availability Targeting

Session 5: Program Planning

Session 5 provides a description of the government program "business process", and then leads to development of program schedules for typical procurement strategies

- Procurement Cycle
- Integrated Project Teams
- Logistics Procurement Issues
- Developing a Program Schedule

Session 6: Critical ILS Documentation

Session 6 introduces each critical ILS documents with emphasis on the who, why, how, and when issues that an ILS manager must know. Example documents are provided for student analysis in working syndicates.

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Session 7: Cost Estimation

Session 7 addresses one of the most challenging subjects for an ILS manager, cost estimation. The thrust of this session is to clear the issues which must be addressed and provide pointers on models and techniques to be used to achieve estimates. Student working syndicates use three models for cost estimation on example programs.

- Life Cycle Cost (LCC)
- Through Life Cost (TLC)
- Logistics Support Package
- Logistics Analysis and Management
- Spares Costs
- Training Costs
- Technical Documentation Costs

Session 8: Product Support Management

Session 8 addresses the management responsibilities of all concerned with success of the ILS program. The session also highlights critical issues, which must be achieved for program success. The session finishes with a comprehensive Product Support Manager's Checklist, which sequentially identifies all major ILS actions.

- Product Support Manager Terms of Reference
- Logistics Team Responsibilities
- Program Manager's Responsibilities
- Sponsor Responsibilities
- Product Support Manager's Checklist

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The Provisioning Process and Supply Support

A Four Day Course

Detailed Course Subject List

1. Overview of the Product Support Analysis and Provisioning Processes in the context of Integrated Logistics Support (ILS) and Supply Support
   a. Overview of the PSA Process
   b. Interrelationship of PSA Tasks with Provisioning and Supply Support
   c. Interfaces to other disciplines necessary to support the PSA and Provisioning processes
   d. Using PSA and Provisioning in the Systems Engineering process to influence the design

2. Documents and Specifications for Provisioning and Related Processes
   a. ILS Standards, Specifications and Handbooks
      - Product Support Analysis
      - Logistics Product Data
      - ASD Specifications
      - Technical Publications - IETM
      - Reliability Centered Maintenance

   b. Related Technical Disciplines
      - Testability
      - Reliability
      - Accessibility
      - Maintainability
      - Standardization

   c. Other Related Areas
      - Parts Management
      - Configuration Management
      - Producibility Engineering
      - Quality Assurance

3. Overview of Product Support Analysis Tasks related to Provisioning
   a. PSA Maintenance Planning
   b. Supportability Engineering through Systems Engineering
   c. Maintenance Significant Items
   d. Maintenance Task Analysis
   e. Logistics Resource Identification
   f. Validation Evaluation and Verification
   g. Conduct of Program and Design Reviews

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4. Maintenance Task Analysis Practical Exercise
   a. Spares Ranging
   b. Standardization Assessment
   c. Harmonization

5. Level of Repair Analysis Overview
   a. Purpose and description of Level of Repair Analysis (LORA)
   b. Identification of LORA candidates
   c. Developing Non-Economic Decision Criteria
   d. Using Non-Economic Decision Criteria
   e. Data required to perform economic LORA
   f. Analytical Process for performing economic LORA
   g. LORA reporting
   h. Validation of LORA model/results

6. Overview of Provisioning
   a. Concepts and Philosophy of Provisioning
   b. Applicable standards
   c. Spares, materials and maintenance assistance modules (MAM)
   d. Provisioning Process Flow
   e. Controlling Documents – PRS – PPS – Data/Attribute Selection-CDRL
   f. Government participation in the Provisioning Process
   g. Provisioning Conferences
   h. Provision deliverables - PTD – SPTD
   i. MICAPS
   j. Allowance documents

7. Provisioning Data Sources and Data Destinations
   a. Project Data – PCCN-PLISN-UOC
   b. Cataloging data
   c. Supply management data
   d. Maintenance related data
   e. SMR Development
   f. IPC/IPB related data

8. Spares Scaling/Depth
   a. Spares Modeling
   b. Calculating Spares Quantities
   c. Mathematical Variations and Alternatives

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9. Provisioning Exercise
   a. Creating Provisioning Data
   b. Generating Provisioning Lists – LSA-036 & LSA-151

10. Spares Modeling Exercise
    Students use an instructor-provided model to determine the quantity of reparable and non-repairable items required for fleet support over a defined operational period.

11. Provisioning Conferences
    a. Preparation
    b. Conducting the Event
    c. Post Conference Actions

12. Provisioning Management and Control
    a. Tools for managing and controlling Provisioning Efforts
    b. Establish an executable Provisioning Plan Strategy
    c. Analysis of risks related to provisioning process

13. Contracting for Provisioning
    a. Provisioning Scheduling
    b. Provisioning Statement of Work
    c. Provisioning Contract Data Requirements List (CDRL)
    d. Spares Delivery

14. Lessons Learned
    a. Examples of Successful Programs
    b. Examples of Failure Programs
    c. Risk Limitation Methods

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Configuration Management and Product Data Management

A Five-day Workshop Presentation

Configuration Management:

A process for establishing and maintaining consistency of a product's performance, functional and physical attributes with its requirements, design and operational information throughout its life.

What the Workshop will achieve for you

CM is an often overlooked critical aspect of programs. Lack of accurate control of the design of a system leads to production and through life support catastrophes. The course is aimed at the engineering, logistics, manufacturing, quality assurance procurement and management professionals who need to broaden their scope of knowledge on critical CM-related topics. The course explores all aspects of logistics and support issues of contemporary programs. The objective of the workshop is to expand the scope of understanding of the attendees in all facets of configuration management and product data management. Highlights of the course are practical examples and case studies of successes and failures on real programs.

Course Overview

Part I Theory and Concepts of CM

Configuration Management Concepts
Identification of Items
Establishing Baselines
Change Control Practices
Management of Configuration Management

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Part II Applying CM to a Project

Contracting for CM
CM and Through Life Operation and Support
Product Data Management
In-Service Configuration Control Issues

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Course Pricing

LMA provides a fixed price for all training courses. The fixed price will be provided upon request. Course Pricing is determined using:

Daily rate based on course duration
Associated travel expenses
Reproduction and shipping of course materials

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