BLACKBIRD FOR TRAINING

Product Support Analysis: S3000L, MIL-STD-1388-1A, and MIL-HDBK-502A

24 – 28 May 2027
Vienna (Austria)



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Course Introduction

Product Support Analysis is a structured engineering and management discipline used to ensure that complex systems can be operated, maintained, supplied, supported, and sustained effectively throughout their lifecycle. It provides the analytical foundation for determining what support resources a system will require, when those resources will be needed, where maintenance should be performed, and how support decisions will affect availability, reliability, cost, and operational performance.

In sectors such as aerospace, defense, transportation, energy, advanced manufacturing, and critical infrastructure, the acquisition of a technically capable system is only the beginning. Long-term success depends on whether the organization can maintain that system under real operating conditions. Poor support planning may result in excessive downtime, unavailable spare parts, inappropriate maintenance arrangements, unnecessary test equipment, insufficient technical documentation, and lifecycle costs that significantly exceed initial expectations.

The Product Support Analysis course introduces a disciplined approach to developing support requirements from the earliest stages of system design and acquisition. It examines the principles of S3000L, the legacy framework of MIL-STD-1388-1A, and the guidance contained in MIL-HDBK-502A. Together, these references support the analysis and planning activities required to improve system supportability and align engineering decisions with operational needs.

Participants will explore how Product Support Analysis interacts with Integrated Product Support, systems engineering, reliability engineering, maintainability, configuration management, technical publications, supply support, training, facilities, manpower, and lifecycle cost management. The course emphasizes the importance of integrating supportability considerations into design decisions rather than attempting to resolve support problems after the system has entered service.

Key analytical areas include Maintenance Task Analysis, Reliability-Centered Maintenance, Level of Repair Analysis, and Life Cycle Cost Analysis. Maintenance Task Analysis determines the resources, skills, tools, procedures, and conditions needed to perform maintenance tasks. Reliability-Centered Maintenance supports the selection of effective preventive maintenance activities. Level of Repair Analysis identifies the most economical and operationally suitable maintenance level for repair or replacement, while Life Cycle Cost Analysis evaluates the long-term financial consequences of alternative support strategies.

The course also addresses data development, analytical relationships, review processes, decision criteria, and the use of Product Support Analysis results. Participants will learn how to identify analysis requirements, structure supportability data, assess alternatives, document assumptions, and convert analytical findings into practical support solutions.



By combining engineering analysis, operational planning, cost evaluation, and support resource definition, this course enables organizations to improve system readiness, reduce avoidable support costs, and strengthen long-term sustainment. It is suitable for supportability engineers, systems engineers, maintenance planners, reliability specialists, logistics professionals, program managers, cost analysts, technical authors, configuration personnel, procurement teams, and government or private-sector professionals involved in complex asset acquisition and support.

Course Objectives

By the end of this course, participants will be able to:

- Explain the purpose and scope of Product Support Analysis.
- Understand the relationship between Product Support Analysis and Integrated Product Support.
- Describe the role of S3000L in modern supportability analysis.
- Interpret the main principles of MIL-STD-1388-1A and MIL-HDBK-502A.
- Integrate supportability analysis with systems engineering activities.
- Identify operational, maintenance, and supportability requirements.
- Develop an appropriate Product Support Analysis strategy.
- Conduct and document Maintenance Task Analysis activities.
- Apply Reliability-Centered Maintenance principles to maintenance planning.
- Evaluate repair and replacement options through Level of Repair Analysis.
- assess ownership and support alternatives using Life Cycle Cost Analysis.
- Identify manpower, skills, tools, facilities, and training requirements.
- Define support data requirements and analysis relationships.
- Evaluate design alternatives from a supportability perspective.
- Develop measurable supportability indicators and review criteria.
- Prepare a practical roadmap for Product Support Analysis implementation.

Course Modules

Day 1: Product Support Analysis Fundamentals and Standards

- Purpose and scope of Product Support Analysis.
- Product support throughout the system lifecycle.
- Product Support Analysis and systems engineering.
- Integrated Product Support elements.
- Supportability as a design requirement.
- Overview of S3000L.
- Principles of MIL-STD-1388-1A.
- Guidance provided by MIL-HDBK-502A.
- Transition from legacy logistics support analysis.
- Product Support Analysis planning.
- Stakeholder roles and responsibilities.
- Supportability reviews and decision points.



Day 2: Operational Analysis and Supportability Requirements

- Operational concepts and mission profiles.
- System utilization and operating environments.
- Maintenance concepts and support policies.
- Functional and physical system breakdown.
- Failure and maintenance information sources.
- Supportability requirement identification.
- Reliability and maintainability relationships.
- Availability and readiness requirements.
- Support system constraints.
- Design interface analysis.
- Supportability risk identification.
- Product Support Analysis data structure.

Day 3: Maintenance Task Analysis and Reliability-Centered Maintenance

- Maintenance Task Analysis objectives.
- Corrective and preventive maintenance tasks.
- Task sequence and procedural analysis.
- Personnel and skill requirements.
- Tools, test equipment, and support equipment.
- Spare parts and consumable requirements.
- Facilities and environmental conditions.
- Task duration and maintenance intervals.
- Reliability-Centered Maintenance principles.
- Failure consequences and maintenance logic.
- Preventive maintenance task selection.
- Maintenance program optimization.

Day 4: Level of Repair and Life Cycle Cost Analysis

- Level of Repair Analysis objectives.
- Organizational, intermediate, and depot-level maintenance.
- Repair, replace, discard, and defer decisions.
- Economic and noneconomic decision criteria.
- Failure rate and demand considerations.
- Transportation and turnaround time.
- Test equipment and facility investment.
- Spare pipeline and inventory implications.
- Life Cycle Cost Analysis principles.
- Acquisition, operation, and support costs.
- Alternative support strategy comparison.
- Sensitivity and uncertainty analysis.



Day 5: Data Integration, Application, and Improvement Planning

- Integration of Product Support Analysis results.
- Support resource requirement consolidation.
- Data validation and quality review.
- Configuration and applicability control.
- Links with technical publications.
- Links with training and manpower planning.
- Supply support and provisioning inputs.
- Supportability performance indicators.
- Product Support Analysis review process.
- Practical supportability case study.
- Development of a Product Support Analysis plan.
- Implementation and improvement roadmap.

Why Should You Attend This Course?

- Understand how supportability decisions influence system readiness.
- Apply recognized Product Support Analysis standards and guidance.
- Improve the integration of engineering and logistics activities.
- Develop more accurate maintenance and support requirements.
- Select effective preventive maintenance tasks.
- Make informed repair, replacement, and maintenance-level decisions.
- Evaluate long-term support strategies using lifecycle cost principles.
- Reduce unnecessary support equipment, inventory, and facility costs.
- Improve the quality and consistency of supportability data.
- Strengthen coordination among engineering, maintenance, supply, and training teams.
- Identify support risks before systems enter operational service.
- Build a structured roadmap for sustainable product support.

Course Conclusion

Product Support Analysis provides the analytical foundation needed to ensure that complex systems remain operational, maintainable, affordable, and supportable throughout their lifecycle. It enables organizations to move beyond reactive maintenance and fragmented logistics planning toward an integrated approach based on operational requirements, engineering evidence, and lifecycle considerations.

This course equips participants with a practical understanding of S3000L, MIL-STD-1388-1A, and MIL-HDBK-502A, together with the major analytical methods used in supportability planning. Participants develop the ability to conduct Maintenance Task Analysis, apply Reliability-Centered Maintenance principles, perform Level of Repair Analysis, and evaluate alternatives through Life Cycle Cost Analysis.

The knowledge gained can be applied during system acquisition, design development, modernization, maintenance planning, and long-term sustainment. Participants will be better prepared to define support resources, assess maintenance concepts, evaluate design alternatives, and coordinate Product Support Analysis results with technical publications, training, supply support, facilities, and workforce planning.



Over the long term, effective Product Support Analysis helps organizations improve availability, control support costs, reduce operational risk, and make more informed investment decisions. It also strengthens the connection between engineering design and real-world support requirements, creating systems that are not only technically capable but also practical and sustainable to operate.

