

RELIABILITY TOOLS AND INTEGRATION FOR OVERALL RELIABILITY PROGRAMS - Management Overview -

OBJECTIVE

In order to minimize total Life Cycle Costs (LCC), we must do two things: 1) choose the best reliability tools from all of the tools available and must apply these tools at the proper phases of a product life cycle, and 2) properly integrate these tools together to assure that the proper information is fed forward and backwards at the proper times. This Management Overview will review each of these tools, when to use them, and how to integrate them in with the rest of the program.

As part of the course, we will learn about Reliability Integration, the process of seamlessly and cohesively integrating reliability tools together to maximize reliability and at the lowest possible cost.

OUTLINE

- **Elements of a Reliability Program**
 - Basic Definitions
 - Reliability vs. Cost
 - Product Life Cycle Matrix
 - Integration Phases
 - Integration in the Concept Phase
 - Integration in the Design Phase
 - Integration in the Prototype Phase
 - Integration in the Manufacturing Phase
- **Phase I: Integration in the Concept Phase**
 - Benchmarking
 - Gap Analysis
 - Reliability Program and Integration Plan

- **Phase II: Integration in the Design Phase**
 - Reliability Modeling and Predictions
 - Failure Modes, Effects, and Criticality Analysis (FMECA)
 - Derating Analysis
 - Design of Experiments
 - Fault Tree Analysis (FTA)
 - Stress-Strength Analysis
 - Tolerance and Worst Case Analysis
 - Human Factors Analysis
 - Maintainability and Preventive Maintenance (PM)
- **Phase III: Integration in the Prototype Phase**
 - Highly Accelerated Life Testing (HALT)
 - Failure Reporting, Analysis and Corrective Action System (FRACAS)
 - Reliability Demonstration Test (RDT)
- **IV: Integration in the Manufacturing Phase**
 - Highly Accelerated Stress Screening (HASS)
 - On-Going Reliability Testing (ORT)
 - Repair Depot Setup
 - Field Failure Tracking System
 - Reliability Performance Reporting
 - End-of-Life Assessment
- **Summary**
 - Reliability vs. Cost
 - Summary of Phases
 - Summary Tools within this Phase
 - Benefits of Integration
 - Next Steps
 - Implementation
 - Further Education in Integration
 - Consulting Services