



Maintenance & Reliability Management

Optimizing Equipment Maintenance & Replacement Practices

Course Introduction

Many Companies have equipment used in Production and Testing that needs to be regularly maintained or replaced. A large defense contractor, Company X, has many advanced pieces of Production Equipment that support its Operations. These pieces of Production Equipment operate in conjunction with support equipment. Breakdowns can cause a variety of issues. In some cases, they occur in support equipment when the production equipment is not in use. These can have severe impacts in the short term for lost award money from current contracts, and in the long-term will reduce the number of contracts and programs. Company X has requested a review and recommendations on the current support equipment maintenance and replacement processes to prevent excess work or costly breakdowns. Bad maintenance is responsible for equipment failures, disrupted production schedules, delays in deliveries, and poor product quality. In this course we will focus on the techniques of optimization – the single most important thrust of this learning program. Whether the decision is about workcrew sizes, or the replacement of component parts or entire equipment units, the concept of making the very best, most optimal, decision will be the principal concern of the training program. This will also to equip the participating maintenance managers, planners and schedulers and engineers with the knowhow to select the most appropriate analytical tools for their maintenance decision-making.

Target Audience

The course is designed for Reliability & Maintenance Engineers and Supervisors. Also Planning and Performance Engineers are recommended to attend this course.

Learning Objectives

Understand the importance of Physical Asset Management and Identify the nature of failures, failure classifications, failure patterns.

Know the differences among the various maintenance methods and the appropriate application of each.

Understand the benefits and cost-effectiveness of implementing an effective PPM program.

Know the guidelines for developing a World Class PPM program by using a 12-step process.

Learn Advanced Preventive/Predictive Maintenance strategies and reflecting the growing focus of industrial safety & show how safety objectives relate to the optimization Models.

Learn the Techniques to ensure PM Program impacts equipment Reliability and explain how operating dynamics analysis manages Machinery that can't be monitored by the Five Traditional Predictive Maintenance Technologies

Course Outline

• 01 DAY ONE

Module (01) Introduction to Equipment Maintenance

1.1 Importance of Physical Asset Management

1.2 Data and Measurement Requirements

1.3 Planning and Set-Up Maintenance Program

1.4 Monitoring and Follow up Maintenance Program

1.5 Showing and Discussion Results

1.6 Operating Dynamics Analysis Always

1.7 Traditional Predictive Maintenance

1.8 Safety & Health Considerations during Maintenance

Module (02) Nature of Equipment Failure

2.1 Understand the Nature of Failures

2.2 Failure Classification and Patterns

2.3 Failure Modes & Effect Analysis

2.4 Cascading / Vital Failure

2.5 Sporadic / Chronic Problems

• **02 DAY TWO**

Module (03) Related Maintenance Methods

3.1 Breakdown Maintenance

3.2 Preventive Maintenance

3.3 Cost of Poor Lubrication

3.4 Fundamentals- Oil & Grease

3.5 Storage & Handling Methods Module

(04) Maintenance Excellence Framework

4.1 Maintenance Management Concepts

4.2 Managing Equipment Reliability

4.3 Optimizing Maintenance Decisions

4.4 Achieving Maintenance Excellence

• **03 DAY THREE**

Module (05) Measuring Maintenance Performance

5.1 Overall Maintenance Performance

5.2 Collecting the Data

5.3 Maintenance Productivity

5.4 Maintenance Organization

5.5 Efficiency of Maintenance Work

5.6 Maintenance Costs

5.7 Maintenance Quality

5.8 Applying for Individual Equipment

Module (06) Proactive Maintenance

6.1 Life Cycle Costing

6.2 Maintenance Prevention Design

6.3 Purchase Specifications

6.4 Acceptance Testing

6.5 Additional Maintenance Cost

• **04 DAY FOUR**

Module (07) Maintenance Economic & Cost Effective

7.1 Total Cost Visibility/ Life Cycle Cost

7.2 Maintenance Costs breakdown Structure

7.3 Maintenance Methods and Cost Centers

7.4 Area of Reducing Maintenance Cost

7.5 Increase Equipment Up Time

7.7 Improve Product Quality

7.8 Cut Inventory Cost

Module (08) Weibull Analysis

8.1 Weibull Analysis Steps

8.2 Advantages

8.3 Median Ranks

8.4 Censored Data or Suspensions

8.5 The Three-Parameter Weibull

8.6 The Five-parameter Bi-Weibull

.7 Confidence Intervals

8.8 Goodness of Fit

• **05 DAY FIVE**

Module (09) Enhancing Reliability through Replacement

9.1 Economic Life of Capital Equipment

9.2 Before and After Calculations

9.3 The Repair versus Replacement Decision

9.4 Technological Improvement

9.5 Life Cycle Costing

Module (10) Optimizing Maintenance Decisions

10.1 Basic Statistics and Economics

10.2 Maintenance Optimization Models

10.3 Optimizing Maintenance Activities

10.4 A Maintenance Assessment Case Study

Confirmed Sessions

FROM	TO	DURATION	FEES	LOCATION
April 13, 2025	April 17, 2025	5 days	4250.00 \$	Qatar - El Doha
May 11, 2025	May 15, 2025	5 days	4250.00 \$	KSA - Riyadh

FROM	TO	DURATION	FEES	LOCATION
June 29, 2025	July 3, 2025	5 days	2150.00 \$	Virtual - Online
Aug. 25, 2025	Aug. 29, 2025	5 days	4250.00 \$	UAE - Dubai
Sept. 15, 2025	Sept. 19, 2025	5 days	4250.00 \$	UAE - Abu Dhabi
Nov. 3, 2025	Nov. 7, 2025	5 days	5950.00 \$	USA - Los Angeles
Dec. 29, 2025	Jan. 2, 2026	5 days	4950.00 \$	Spain - Barcelona