Total Productive Maintenance (TPM)

Introduction:

Total Productive Maintenance (TPM) is an equipment management program that emphasizes operator involvement and ownership of equipment performance. The goals of a TPM program are to maximize equipment productivity, maximize equipment availability and make quality product by eliminating causes of equipment defects, losses and wastes through expanding and engaging the knowledge, skills and abilities of the front-line people running the process.

Who Should Attend?

OE champions, Maintenance managers, engineers & planners, reliability and maintenance engineers, facilities and utilities managers, top level maintenance technicians, operations and production managers & engineers, plant engineers, design engineers, reliability engineers & technicians, operators, safety engineers, risk engineers, CMMS and spare parts personnel, safety engineers and anyone who is involved in reliability engineering strategies or methodologies to include design engineers for capital projects engineers

Course Objectives:

By the end of this course delegates will be able to:

- TPM as a part of the Lean Production System
- Waste and loss due to equipment problems
- Periodic, predictive, corrective, and preventive maintenance
- TPM metrics: loading, availability, performance, quality, TEEP, OEE
- The Six Big Losses
- Individual and team roles in TPM, Operator, Equipment Tech, Engineer
- The Five Pillars of Total Productive maintenance: Focused Equipment Improvement
- Autonomous Maintenance, Planned Maintenance
- Skills Development, Maintenance Reliability
- The impact of TPM on competitive performance

Course Outline:

What is TPM?

- TPM gives Lifetime Equipment Health
- What is Total Productive Maintenance?
- The Hidden Factory
- The Six Production Losses
- The Seven Process Wastes
- Production Losses and Overall Equipment Effectiveness
- The Substance of TPM
- The Never Ending TPM Cycle

Equipment Lifetime Health

- Total Productive Maintenance as an operator driven reliability
- Need an Equipment Performance Vision
- Match TPM Process to the Vision
- TPM in a Nutshell

TPM and Its Operating Risk Reduction Benefits

- Purpose of Total Productive Maintenance
- TPM Works by Reducing Risk of Failures
- Multiple Strategies across the Life Cycle
- Value-Added to Equipment with TPM
- Risk Reduction with TPM

Measuring Equipment Performance

- Monitoring Operating Effectiveness
- Purpose of Measuring Equipment Performance
- Overall Equipment Efficiency (OEE)
- Start Measuring Plant Non-Performance
- Production Disruptions Causes Variation, Pareto Chart the Problems for Focus

The Importance of Operator Ownership of Equipment Performance

- Promoting Operator Ownership
- Operator Monitoring and Watch-keeping
- Equipment Behaviour – Identifying the Degradation Cycle
- Operators Learn about their Equipment
- Operator Monitoring & Watch-keeping Procedure
- Fact Based Equipment Decisions

Getting Top Quality Equipment Performance

- Failure Preventing Job Procedures, Accuracy Controlled Expert
- Accuracy Controlled SOPs Prevent Variation

- Including 3T Failure Prevention in SOPs
- Accuracy Controlled Enterprise (ACE)
- 7 Visual Quality Management Tools for TPM Problem Solving
- Make measurement Visual

Requirements for Successful TPM Introduction

- Identifying TPM Systems and Processes
- Critical Mass of Support
- The People of Successful TPM
- The Culture of Successful TPM
- Best Performance from Multifunctional Teams
- Role and Importance of Supervisors

TPM Requires Change Management

- TPM Requires a Change Management Process for Successful Introduction
- Manage TPM Introduction like a Project
- Providing the whole 'TPM Mix'
- Sustained Resourcing of TPM Processes
- Prototype a TPM Program for Proof of Worth
- Change, Do, Learn, Improve
- TPM Champions Needed

A TPM Case Study

- Management Support
- TPM Team Objectives
- TPM Team Development
- Identify Current State
- Prioritise Equipment Problems
- Target Key Problems
- Set New Standards

- Authorise Proposed Changes
- Improve Documentation &Training
- Return Equipment to Condition/Sustain it
- Measure Improvement
- Lock-in Gains
- Second and Third TPM Cycles

How to Approach Planning For TPM Introductions

- Planning TPM Introduction: using the Change Management Matrix
- TPM Change Management Requirements
- The TPM Route Map
- Develop Detailed Project Plan & Schedule