

# Failure Modes and Effects Analysis (FMEA)

## Identifying & Prioritizing Methods of Failures

Practical Training Designed & Delivered by Real-World Practitioners



Join us for a class on both the theory and application of maintenance and reliability concepts, where we:

- Challenge your thinking
- Expose you to best practices
- Teach practical techniques for improving maintenance & reliability
- Show you a path to improving:
  - ✓ Process performance through increased availability
  - ✓ Lower maintenance costs

### 2-day Practitioner's Session

#### Core Concepts

- *Types of Failures and Failure Modes*
- *Types of Effects*
- *Determining & Prioritizing Risk*
- *Mitigation Techniques & Action Plans*
- *Converting Analysis Results into Strategy*

- ❖ 1/2-day Course for *Leaders and Sr. Managers* also available



### What will you learn?

- Understanding what failure modes are and how to identify them
- Examining different ways in which a process, assets, or systems fail
- Analyzing the consequences of each failure mode
- Assessing the impact on performance, safety, cost, and quality
- Methods for quantifying and prioritizing the severity of effects
- Learning how to calculate the Risk Prioritization Number (RPN)
- Understanding the role of RPN in prioritizing risks
- Techniques to lower the RPN value of each Failure Mode
- Developing strategies to mitigate identified risks
- Discuss facilitation methods and challenges

### Who is this class for?

- Maintenance Managers
- Reliability Engineers
- Maintenance Engineers
- Operational Leaders
- Maintenance Supervisors
- Operational Supervisors
- Plant Managers
- Reliability Leaders
- Maintenance Planners
- Plant/Facility Engineers

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Day 1

- Purpose and Use of FMEA
  - Strategy and Performance Expectations
- System Function and Functional Failures
  - System Boundaries & Failure Definitions
- Failure Modes
  - Part + Problem + Reason
- Failure Effects & Consequences
  - Primary & Terminal Effects
- FMEA/FMECA Decision Tree
  - Mitigation Tasks

Day 2

- Importance of Facilitation
  - Speed & Accuracy
- Facilitation Methods
  - Stalemates & Disruptive Participants
- Practical Exercises
  - Role-playing & Room Management
- Analysis of Client's Current System
  - Evaluation & Improvement Ideas

- Real World Examples
- Breakout Exercises

- Case Histories
- Group Discussions



*Plant Reliability is the foundation on which Asset Management is built. The best developed Asset Strategy will prove ineffective if your plant behaves in an unpredictable manner.*

*Unforeseen failures foster a self-reinforcing reactive maintenance culture.*



*An understanding of reliability tools & techniques will help break the reactive maintenance cycle.*



### Meet your Instructor – Andy Page, Ph.D.

- Andy is a Certified Maintenance & Reliability Professional (CMRP) with over 30+ years of Physical Asset Management & Operational Field experience in multi-technique Condition Monitoring, Maintenance Management, Process Reliability & Improvement, Defect Elimination & Facilitation of Staff Training, Development & Mentoring.
- He is recognized internationally as an expert in predictive maintenance and reliability. He has spoken at maintenance conferences in several countries, and regularly leads clients through successful implementations of maintenance and reliability improvements.

