

Root Cause Failure Analysis

Course Methodology

This is an interactive course. There are open question and answer sessions, regular group exercises, videos, case studies and presentations on best practice and the fundamentals of reliability improvement. Participants have the option and opportunity to share and discuss their own work experience and to identify issues and enhancements that can be immediately tackled/applied upon returning to their organizations.

Course Objectives

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

- Understand equipment function and therefore skilfully identify equipment failure
- Effectively investigate equipment failure incidents to understand root causes
- Implement effective controls to avoid similar incidents occurring
- Engage their organization to achieve more effective failure investigation
- Analyze critical equipment systems to avoid future failure

Target Audience

This course is ideal for maintenance managers, operations managers and reliability professionals. Maintenance engineers, experienced supervisors, planners and functional specialists will also benefit greatly from this course.

Target Competencies

- Failure investigation
- Failure control implementation
- Root cause analysis and 5Y
- Failure mode identification
- Reliability engineering

Course Outline

- **Purpose of Failure Investigation, Prevention and Control**
 - Understanding the needs of the business
 - How equipment failures effect profit and customer satisfaction
 - Risk assessment and prioritization
 - Introduction to the Integrated Model of Excellence for Maintenance

- **Understanding Function and Failure Modes**
 - Understanding equipment function
 - The history of failure mode modelling and where people go wrong
 - Introduction to failure types

- **Principles of Failure Investigation**
 - What is Root Cause Failure Analysis (RCFA)
 - Gathering data, how to understand what has really happened
 - Investigating further with Barrier Analysis and Change Identification
 - Getting to root cause with 5 why's
 - Organising your investigation with Cause Types and Fault Trees
 - The importance of facts and data based analysis

- **Principles of Failure Prediction**
 - What Failure Modes Effects Analysis (FMEA) is
 - Understanding when it is appropriate to undertake FMEA
 - Pitfalls for FMEA and how to avoid these
 - FMEA as part of an integrated Reliability Centred Maintenance (RCM) process

- **Implementing Failure Prevention Controls**
 - Types of controls
 - How to choose the appropriate control
 - Making controls stick

- **Practical Implementation Methods**
 - Organizing your business to effectively learn from failure
 - Who needs to be engaged in achieving the change?
 - The importance of communication
 - Implementing Continuous Improvement in your failure learning process

Why Attend

This course provides participants with an in-depth and practical understanding of how to investigate and prevent equipment failure.

Failure analysis has historically been viewed as the domain of technical specialists, using complicated tools and programs to inform maintenance and operating teams what they have done incorrectly. This course demystifies failure analysis and places it in the hands of the maintenance and operating organizations in order to enable greater asset reliability.

The course explores models such as Root Cause Failure Analysis (RCFA) and Failure Modes and Effects Analysis (FMEA); it demonstrates how these can be broken down into simple steps that can engage the whole organization, from the operating team to the technical specialists.