BOOST
THE LEADING TRAINING PROVIDER

Maintenance & Reliability Management

Advanced Techniques in Root Cause Analysis

Course Introduction

Root Cause Analysis (RCA) is a critical process for identifying the underlying causes of problems, preventing recurrence, and improving system reliability. Advanced techniques like Fault Tree Analysis (FTA), Failure Modes and Effects Analysis (FMEA), and the Fishbone diagram allow for more in-depth investigations, providing organizations with the tools they need to solve complex issues. Properly applying these methods helps organizations reduce downtime, enhance product quality, and optimize operational efficiency.

This training program provides participants with an in-depth understanding of advanced RCA techniques and how to apply them in real-world scenarios. From FTA to FMEA, participants will learn the step-by-step process of performing thorough root cause investigations and how to use data analysis for continuous improvement.

Target Audience

This course is designed for quality managers, engineers, maintenance professionals, and anyone responsible for identifying and resolving complex problems within their organizations.

Learning Objectives

- Understand the key principles and importance of Root Cause Analysis (RCA).
- Learn advanced techniques such as Fault Tree Analysis (FTA) and Failure Modes and Effects Analysis (FMEA).
- Gain expertise in applying the 5 Whys and Fishbone diagram techniques to problem-solving.
- Learn how to integrate data analysis into RCA for more accurate root cause identification.

- Understand how to implement continuous improvement practices and CAPA from RCA findings.

Course Outline

- **01 DAY ONE**

  Introduction to Root Cause Analysis (RCA)

  - What is Root Cause Analysis (RCA)?
  - The importance of identifying the root cause of problems
  - Difference between symptoms and root causes
  - Benefits of conducting a thorough RCA
  - Key principles and methodologies in RCA
  - Common RCA tools and techniques (Fishbone, 5 Whys, etc.)
  - Challenges and barriers in performing effective RCA

- **02 DAY TWO**

  Advanced RCA Techniques: Fault Tree Analysis (FTA)

  - Introduction to Fault Tree Analysis (FTA)
  - How FTA helps identify failure pathways
  - Understanding logical gates in FTA (AND, OR, etc.)
  - Steps for creating a Fault Tree diagram
  - Analyzing probability and reliability in FTA

  Using FTA to prioritize corrective actions

- **03 DAY THREE**

  Failure Modes and Effects Analysis (FMEA)

  - What is Failure Modes and Effects Analysis (FMEA)?
  - The process of conducting an FMEA
  - Identifying potential failure modes and their effects
  - How to assess the severity, occurrence, and detection of failures
  - Calculating the Risk Priority Number (RPN)
  - Integrating FMEA with design and maintenance processes

- **04 DAY FOUR**

5 Whys and Fishbone Diagram (Ishikawa) Techniques

- Introduction to the 5 Whys technique
- How to use the 5 Whys for effective problem-solving
- Benefits of the Fishbone diagram (Ishikawa)
- Steps for creating a Fishbone diagram
- Categorizing causes in a Fishbone diagram (People, Process, Equipment, etc.)
- Combining 5 Whys with Fishbone diagram for deeper analysis
- Using these techniques in conjunction with other RCA methods

- **05 DAY FIVE**

Data Analysis and Continuous Improvement in RCA

- How data analysis supports root cause identification
- Using Pareto charts and histograms for RCA
- The role of data-driven decision-making in root cause analysis
- Techniques for implementing continuous improvement after RCA
- Implementing corrective and preventive actions (CAPA)
- Best practices for documenting RCA findings and outcomes

Confirmed Sessions

FROM	TO	DURATION	FEES	LOCATION
June 15, 2025	June 19, 2025	5 days	4250.00 $	KSA - Riyadh
July 14, 2025	July 18, 2025	5 days	4950.00 $	South Africa - Cape Town
Oct. 13, 2025	Oct. 17, 2025	5 days	4250.00 $	UAE - Abu Dhabi