



Maintenance & Reliability Management

## Advanced Root Cause Analysis

## Course Introduction

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Root Cause Analysis (RCA) is a critical tool for organizations aiming to address underlying issues, prevent recurrence, and continuously improve performance. Advanced RCA techniques allow businesses to dive deeper into complex problems and find lasting solutions. By identifying root causes, organizations can eliminate inefficiencies, improve safety, reduce downtime, and enhance overall quality.

This training program covers both fundamental and advanced RCA techniques, from basic methods like 5 Whys and Fishbone diagrams to more advanced approaches like Fault Tree Analysis (FTA) and Failure Modes and Effects Analysis (FMEA). Participants will also learn how to collect and analyze data, implement corrective and preventive actions, and integrate RCA into continuous improvement processes.

## Target Audience

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This course is designed for quality managers, process engineers, maintenance teams, and anyone responsible for identifying and resolving issues within an organization through Root Cause Analysis.

## Learning Objectives

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- Understand the key principles and importance of Root Cause Analysis (RCA).
- Learn advanced RCA techniques such as Fault Tree Analysis (FTA) and Failure Modes and Effects Analysis (FMEA).
- Gain skills in collecting and analyzing data for accurate problem identification.
- Learn how to implement effective corrective and preventive actions (CAPA).

- Discover how to integrate RCA into continuous improvement processes for long-term success.

## Course Outline

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### • 01 DAY ONE

#### Introduction to Root Cause Analysis (RCA)

- What is Root Cause Analysis (RCA)?
- Importance of identifying and addressing the root cause of problems
- Key differences between symptoms, causes, and effects
- Overview of basic RCA techniques (5 Whys, Fishbone diagram)
- The role of RCA in improving quality, reliability, and performance
- Steps involved in the RCA process
- Common challenges in performing effective RCA and how to overcome them

### • 02 DAY TWO

#### Advanced RCA Techniques

- Introduction to advanced RCA techniques (FTA, FMEA, etc.)
- Fault Tree Analysis (FTA): understanding logical gates and fault propagation
- Failure Modes and Effects Analysis (FMEA): assessing failure risk and criticality
- Analyzing complex systems with advanced RCA methods
- How to integrate advanced techniques into existing RCA practices
- Case studies of advanced RCA applications in various industries
- The role of data and metrics in advanced RCA techniques

### • 03 DAY THREE

#### Data Collection and Analysis for RCA

- The importance of data collection in RCA
- Identifying reliable sources of data for problem-solving
- Techniques for collecting qualitative and quantitative data
- Using statistical tools and software for data analysis
- How to identify trends, patterns, and anomalies in data
- Correlation versus causation: how to avoid data analysis pitfalls
- How to use data to validate or reject potential root causes

• 04 DAY FOUR

Implementing Corrective and Preventive Actions (CAPA)

- The relationship between RCA and Corrective and Preventive Actions (CAPA)
- How to develop effective corrective actions based on root causes
- Setting up preventive actions to avoid recurrence of issues
- How to prioritize corrective and preventive actions (impact vs. feasibility)
- Creating a CAPA plan and monitoring its effectiveness
- Tools for tracking CAPA implementation and success

• 05 DAY FIVE

Continuous Improvement and RCA Integration

- The role of RCA in continuous improvement processes (CI)
- Using RCA to identify and eliminate inefficiencies in processes
- How to create a culture of proactive problem-solving through RCA
- Integrating RCA findings into broader organizational improvement strategies
- Using RCA for risk management and reducing operational costs
- The importance of feedback loops in refining RCA practices

Confirmed Sessions

FROM	TO	DURATION	FEES	LOCATION
April 21, 2025	April 25, 2025	5 days	4250.00 \$	UAE - Abu Dhabi
Aug. 25, 2025	Aug. 29, 2025	5 days	4950.00 \$	Netherlands - Amsterdam
Dec. 15, 2025	Dec. 19, 2025	5 days	4250.00 \$	UAE - Dubai