

## UNDERSTANDING RCFA COMPLETELY

*“Mastering Root Cause Failure Analysis Techniques to Prevent Recurrence and Drive Operational Reliability”*

### Schedule

Date	Venue	Fees (Face-to-Face)
21 - 25 Sep 2026	London, UK	USD 3495 per delegate

► **Available delivery methods:** Face-to-Face & Online Training

### Introduction

Root Cause Failure Analysis (RCFA) is a structured method of problem-solving used to identify the underlying causes of equipment failures, process upsets, and recurring operational issues. It plays a crucial role in enhancing asset reliability, reducing downtime, and improving safety. Understanding RCFA completely means going beyond the basics to apply proven techniques in a consistent, evidence-based manner across complex industrial environments.

This intensive 5-day course delivers comprehensive, hands-on training in the principles, tools, and execution of RCFA. Participants will learn how to lead investigations, gather and interpret data, build logical cause-effect chains, and implement sustainable corrective actions that prevent future failures.

### Objectives

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

- Understand the philosophy, principles, and objectives of RCFA
- Apply proven RCFA tools including 5 Whys, fault tree, and cause-effect mapping
- Lead and facilitate structured investigations across technical disciplines
- Collect physical, operational, and historical evidence to support conclusions
- Design effective and sustainable corrective and preventive actions

## Why Attend

- To reduce unplanned equipment failures and costly downtime
- To strengthen problem-solving and analytical thinking across teams
- To comply with regulatory and internal reliability improvement mandates
- To build a consistent methodology for investigating failures
- To improve organizational learning and safety culture

## Target Audience

This program is designed for:

- Maintenance and reliability engineers
- Operations and plant managers
- Quality assurance and safety personnel
- Asset management and root cause analysts
- Anyone involved in failure investigations or process improvement initiatives

## Individual Benefits

Key competencies that will be developed include:

- Structured problem solving and critical thinking
- Evidence-based analysis and causal mapping
- Facilitation of multidisciplinary RCFA teams
- Technical writing and reporting of findings
- Development of SMART corrective and preventive actions

## Organizational Benefits

Upon completing the training course, participants will demonstrate:

- Improved reliability and availability of critical assets
- Lower maintenance costs and extended equipment life cycles
- Enhanced safety and incident prevention
- More efficient and standardized investigation procedures
- Strengthened continuous improvement and knowledge retention

## Instructional Methodology

The course follows a blended learning approach combining theory with practice:

- Strategy Briefings - RCFA philosophy, reliability frameworks, and global standards
- Case Studies - Real-world failures and how they were investigated
- Workshops - RCFA tool application, evidence mapping, and team exercises
- Peer Exchange - Sharing cross-industry lessons and common pitfalls
- Tools - RCFA templates, investigation forms, causal factor charts, and action plans

## Course Outline

Detailed 5-Day Course Outline

**Training Hours: 7:30 AM - 3:30 PM** Daily Format: 3-4 Learning Modules | Coffee breaks: 09:30 & 11:15 | Lunch Buffet: 01:00 - 02:00

### Day 1: Foundations of RCFA and Failure Understanding

- Module 1: Introduction to RCFA Principles (07:30 - 09:30) • Why failures recur and how RCFA addresses root causes • The difference between symptoms, causes, and root causes • Types of failure modes: mechanical, human, process, and system
- Module 2: Failure Data Collection and Evidence Handling (09:45 - 11:15) • What data to collect and when • Evidence handling and documentation • Failure scene preservation and interview techniques
- Module 3: RCFA Process Framework and Roles (11:30 - 01:00) • Planning and scoping investigations • RCFA team structure and responsibility assignment
- Module 4: Workshop - Develop an RCFA Charter (02:00 - 03:30) • Define the scope, timeline, and team for a case scenario

### Day 2: RCFA Tools and Techniques - Part I

- Module 1: 5 Whys and Cause Mapping (07:30 - 09:30) • Simple root cause identification method • When and how to apply it effectively
- Module 2: Fishbone (Ishikawa) and Causal Factor Charts (09:45 - 11:15) • Categorizing causes into systems, procedures, people, and equipment • Building visual cause diagrams
- Module 3: Fault Tree Analysis (FTA) Basics (11:30 - 01:00) • Understanding top events and logic gates • Applying FTA to critical failures
- Module 4: Group Exercise - Applying Cause Mapping (02:00 - 03:30) • Hands-on case exercise using real-world failure

### Day 3: RCFA Tools and Techniques - Part II

- Module 1: Timeline Construction and Event Sequencing (07:30 - 09:30) • Chronological analysis of failure evolution • Identifying delays, decisions, and deviations
- Module 2: Human and Organizational Factors (09:45 - 11:15) • Latent vs. active failures • Influences of training, supervision, and culture
- Module 3: Verification of Root Causes (11:30 - 01:00) • Testing logic and avoiding assumptions • Using evidence to support conclusions
- Module 4: Workshop - Full RCFA on Sample Case (02:00 - 03:30) • Team-based failure investigation simulation

### Day 4: Corrective and Preventive Actions (CAPA)

- Module 1: Designing Effective CAPA (07:30 - 09:30) • From root cause to solution • Preventing recurrence and addressing systemic risk
- Module 2: CAPA Implementation and Ownership (09:45 - 11:15) • Assigning responsibilities and follow-through • Tracking KPIs and verifying results
- Module 3: Reporting RCFA Results (11:30 - 01:00) • Structuring RCFA reports for clarity and action • Presenting findings to leadership and stakeholders
- Module 4: Group Exercise - Develop a CAPA Plan (02:00 - 03:30) • Translate investigation results into actions

### Day 5: Integration, Review, and Case Applications

- Module 1: Embedding RCFA into Organizational Practice (07:30 - 09:30) • Linking RCFA with RCM, TPM, and safety systems • Building an RCFA culture and database
- Module 2: Auditing and Improving RCFA Effectiveness (09:45 - 11:15) • Measuring impact and identifying gaps • Periodic review and knowledge sharing
- Module 3: Final Project and Presentations (11:30 - 01:00) • Teams present full RCFA of assigned case
- Module 4: Wrap-Up, Feedback & Certification (02:00 - 03:30) • Course debrief, Q&A, and certificate distribution

### Certification

Participants will receive a Certificate of Completion in Root Cause Failure Analysis (RCFA), verifying their ability to conduct structured, evidence-based investigations and implement corrective actions to prevent failure recurrence.

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