

Table of Contents

Course Overview

This course provides an in-depth understanding of **Root Cause Analysis (RCA) for Maintenance** and **Autonomous Maintenance (AM)**, focusing on effective problem-solving techniques to minimize equipment failures and downtime. Participants will learn how to identify, analyze, and address recurring maintenance issues using structured RCA methodologies. The course also introduces **Autonomous Maintenance (AM)**, emphasizing operator-led maintenance practices to improve equipment reliability and overall plant efficiency. Through real-world case studies, hands-on exercises, and group discussions, attendees will gain practical insights into integrating RCA and AM for a proactive maintenance culture.

Intended Audience

This course is designed for **maintenance and reliability professionals** across various industries. It is ideal for **maintenance engineers, technicians, reliability engineers, operations and production managers, plant supervisors, and continuous improvement professionals** looking to enhance their problem-solving skills and implement sustainable maintenance practices. It is also beneficial for organizations aiming to shift from reactive maintenance to a proactive and autonomous maintenance approach.

Course Breakdown by Days

Day 1: Fundamentals of Root Cause Analysis (RCA)

- Introduction to RCA and its significance in maintenance
- Common maintenance failures and challenges
- Overview of RCA tools and techniques
- 5 Whys and Fishbone Diagram exercises
- Case study: Identifying maintenance-related failures

Day 2: Advanced RCA Techniques and Problem-Solving

- Fault Tree Analysis (FTA) and Failure Mode and Effects Analysis (FMEA)
- Data collection methods for RCA
- Implementing corrective and preventive actions
- Monitoring and measuring RCA effectiveness
- Workshop: Conducting a real-time RCA on a maintenance issue

Day 3: Introduction to Autonomous Maintenance (AM)

- What is Autonomous Maintenance?
- Principles and benefits of AM
- Key pillars of AM implementation
- Operator involvement in maintenance activities
- Hands-on session: Implementing AM in workplace scenarios

Day 4: Integrating RCA with Autonomous Maintenance

- How RCA supports AM strategies
- Proactive maintenance through early fault detection
- Common challenges and solutions in AM implementation
- Case study: RCA-driven AM success stories
- Group discussion: Best practices for sustainable AM

Day 5: Practical Applications and Continuous Improvement

- Developing a structured RCA and AM framework for organizations
- KPI measurement and tracking effectiveness
- Role of digital tools and Industry 4.0 in maintenance
- Final workshop: Solving a real-world maintenance problem
- Q&A, feedback, and course wrap-up