



SCANDINAVIAN ACADEMY
For Training and Development

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Course: Root Cause Failure Analysis

Code	City	Hotel	Start	End	Price	Language - Hours
MA-541	Frankfurt (Germany)	Hotel Meeting	2027-02-01	2027-02-05	5950 €	En - 25

Course Introduction:

Root Cause Failure Analysis (RCFA) is a systematic approach to identifying the underlying causes of equipment failures and operational issues. Understanding failure mechanisms, investigating root causes, and implementing corrective actions are essential for improving reliability, minimizing downtime, and enhancing asset performance.

This training program equips professionals with the knowledge and tools to conduct effective failure analysis, develop preventive strategies, and optimize maintenance practices based on industry best practices and standards.

Course Objectives:

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

- Understand the principles and methodologies of RCFA.
- Identify failure modes and contributing factors in industrial systems.
- Apply systematic failure investigation techniques.
- Implement corrective and preventive measures to mitigate recurring failures.
- Utilize data analysis and reliability engineering tools for decision-making.
- Develop an effective RCFA program within their organization.



Target Audience:

- Maintenance and Reliability Engineers
- Asset and Plant Managers
- Operations and Maintenance Personnel
- Health, Safety, and Environment (HSE) Officers
- Quality Assurance and Process Improvement Professionals
- Anyone involved in failure investigations and asset management

Course Content:

Fundamentals of Root Cause Failure Analysis (RCFA)

- Definition and importance of RCFA in asset management
- Difference between failure analysis and troubleshooting
- Common failure mechanisms in mechanical and electrical systems
- The role of human factors in failure analysis
- Industry standards and best practices for RCFA
- Case study: Real-world application of RCFA in industrial settings

Failure Modes and Effects Analysis (FMEA)

- Introduction to Failure Modes and Effects Analysis (FMEA)
- Identifying and categorizing failure modes
- Risk assessment and prioritization techniques
- Developing mitigation strategies based on FMEA results
- Integration of FMEA into asset management programs
- Workshop: Conducting an FMEA for a critical system

Systematic RCFA Investigation Techniques

- Steps of an effective RCFA process



- Data collection and failure evidence gathering
- Event timeline reconstruction and failure sequencing
- Analytical tools: Fishbone Diagram, 5-Whys, Fault Tree Analysis
- Using statistical analysis to validate root causes
- Practical exercise: Conducting an RCFA investigation

Corrective and Preventive Action Strategies

- Developing corrective action plans for identified failures
- Implementing preventive maintenance strategies
- Condition monitoring and predictive maintenance approaches
- Reliability-centered maintenance (RCM) and its role in RCFA
- Ensuring compliance with safety and regulatory requirements
- Case study: Preventing recurrence of critical equipment failures

Implementing and Sustaining an RCFA Program

- Establishing an RCFA framework within an organization
- Documentation and reporting best practices
- Training and competency development for failure analysis teams
- Leveraging digital tools and AI for failure prediction
- Continuous improvement through lessons learned from failures



The Scandinavian Academy for Training and Development adopts the latest scientific and professional methodologies in training and human resource development, aiming to enhance the efficiency of individuals and organizations. Training programs are delivered through a comprehensive approach that includes:

- Theoretical lectures supported by PowerPoint presentations and visual materials (videos and short films).
- Scientific evaluation of participants before and after the program to measure progress and knowledge acquisition.
- Brainstorming sessions and practical role-playing to simulate real-life scenarios.
- Case studies tailored to align with the training content and participants work nature.
- Assessment tests conducted at the end of the program to evaluate the achievement of training objectives.

Each participant receives the training material (both theoretical and practical) in printed form and saved on a CD or flash drive. Detailed reports, including attendance records, final results, and overall program evaluations, are also provided.

Training materials are prepared professionally by a team of experts and specialists in various fields. At the end of the program, participants are awarded a professional attendance certificate, signed and accredited by the Scandinavian Academy for Training and Development.

Program Timings:

- 9:00 AM to 2:00 PM in Arab cities.
- 10:00 AM to 3:00 PM in European and Asian cities.

The program includes:

- A daily Coffee Break provided during the sessions to ensure participants comfort.