

Course No. 1630

Root Cause Analysis & Problem-Solving Techniques Training Course

INDUSTRIAL ENGINEERING & OPERATIONAL EXCELLENCE
INDUSTRIAL ENGINEERING, MAINTENANCE & OPERATIONS

DURATION

5 Days

DELIVERY

Classroom



Course Overview

The Root Cause Analysis & Problem-Solving Techniques Training Course is a practical and professionally structured program designed to strengthen participants' ability to identify, analyze, and resolve operational, technical, administrative, and organizational problems systematically. Rather than relying on assumptions, temporary fixes, or reactive decision-making, the course provides a structured approach for understanding why problems occur and developing solutions that address their underlying causes.

In complex organizations, recurring problems can affect productivity, quality, cost, reliability, customer service, operational continuity, and overall organizational performance. The challenge is often not recognizing that a problem exists, but determining what is actually causing it and distinguishing root causes from symptoms. This training course equips professionals with practical analytical methods to define problems, collect relevant evidence, investigate contributing factors, validate root causes, and select appropriate corrective actions.

The program covers widely applicable problem-solving and root cause analysis techniques, including the Five Whys, Cause-and-Effect Analysis, Pareto Analysis, process analysis, evidence-based investigation, variation analysis, and structured corrective and preventive action. Participants will learn how to apply these techniques to real workplace situations while considering operational, technical, human, process, and organizational factors.

The Root Cause Analysis & Problem-Solving Techniques Training Course is designed to support a stronger culture of systematic problem solving, continuous improvement, operational excellence, quality management, and evidence-based decision-making. It is relevant to government entities, ministries, public-sector organizations, banks and financial institutions, oil and gas companies, industrial organizations, energy companies, and large corporations seeking to improve their ability to prevent recurring problems and sustain operational performance.

Objectives

- Analyze operational, technical, administrative, and organizational problems systematically and distinguish symptoms from underlying root causes during the training program.
- Develop a structured approach for defining problems, establishing their scope, assessing their impact, and determining investigation priorities.

- Evaluate available information, operational data, and evidence to support accurate problem diagnosis before selecting corrective actions.
- Apply the Five Whys, Cause-and-Effect Analysis, Pareto Analysis, and other root cause analysis techniques to practical workplace problems.
- Analyze recurring problems, process variation, error patterns, and performance deviations to identify contributing factors.
- Assess relationships between potential causes and observed outcomes using logical and evidence-based investigation methods.
- Design practical solutions that address verified root causes while considering organizational resources, constraints, risks, and operational requirements.
- Improve problem-solving decisions by evaluating alternative solutions according to effectiveness, feasibility, cost, risk, and expected impact.
- Implement corrective and preventive actions designed to resolve problems and reduce the likelihood of recurrence.
- Strengthen solution-monitoring mechanisms through appropriate performance indicators and effectiveness measures.
- Align problem-solving initiatives with quality management, operational excellence, risk management, and organizational performance objectives.
- Develop a complete workplace problem-solving plan covering problem definition, root cause analysis, solution selection, implementation, and follow-up by the end of the course.

Who Should Attend

The Root Cause Analysis & Problem-Solving Techniques Training Course is designed for managers, supervisors, engineers, specialists, and professionals responsible for operational performance, quality, productivity, reliability, process improvement, and problem resolution. It is particularly relevant for Operations Managers, Production Managers, Quality Managers, Industrial Engineers, Process Engineers, Maintenance and Reliability Engineers, Continuous Improvement Specialists, Operational Excellence Professionals, Quality Specialists, Process Analysts, Performance Management Professionals, and Project Managers.

The course is also suitable for department heads, senior managers, team leaders, risk and compliance professionals, internal audit specialists, technical professionals, incident investigation teams, and personnel responsible for non-conformity management and corrective actions. Executives and decision makers can also benefit from the program by developing a more disciplined

approach to diagnosing organizational problems, evaluating solutions, and making evidence-based corrective and preventive decisions.

Learning Outcomes

- Define operational and organizational problems accurately and establish their scope, impact, and priorities.
- Distinguish between symptoms, problems, immediate causes, contributing factors, and verified root causes.
- Apply structured root cause analysis methodologies to real workplace problems.
- Use the Five Whys technique to investigate underlying causes systematically.
- Develop Cause-and-Effect Diagrams to organize and evaluate potential contributing factors.
- Analyze operational data, trends, patterns, and variation to support evidence-based problem diagnosis.
- Prioritize problems and potential causes according to impact, frequency, risk, and operational significance.
- Evaluate alternative solutions using effectiveness, feasibility, cost, risk, and sustainability criteria.
- Design corrective and preventive actions that directly address verified root causes.
- Develop implementation plans that define responsibilities, resources, timelines, and follow-up requirements.
- Measure the effectiveness of corrective actions using appropriate performance indicators and verification methods.
- Prepare a professional root cause analysis report containing the problem statement, evidence, root causes, recommended solutions, corrective actions, and implementation plan.

Course Outline

DAY 01

Foundations of Problem Solving and Systematic Thinking

- Understanding problem solving and its role in organizational and operational performance.
- Defining the difference between symptoms, problems, immediate causes, contributing factors, and root causes.
- Establishing clear and measurable problem statements.

DAY 01 — CONTINUED

- Classifying operational, technical, administrative, process, and organizational problems.
- Assessing the impact of problems on quality, cost, productivity, reliability, safety, and service performance.
- Establishing the scope, boundaries, affected processes, and stakeholders associated with a problem.
- Identifying the information and evidence required for effective problem investigation.
- Developing analytical thinking and evidence-based decision-making practices.

PRACTICAL APPLICATION OR DISCUSSION

Analyze a workplace problem and establish its problem statement, symptoms, impact, scope, and affected stakeholders.

DAY 02

Root Cause Analysis Techniques and Investigation Methods

- Understanding the principles, stages, and applications of Root Cause Analysis.
- Applying the Five Whys technique to investigate underlying causes.
- Developing and using Cause-and-Effect Diagrams.
- Categorizing causes across people, processes, technology, equipment, materials, methods, and organizational factors.
- Analyzing sequences of events and relationships between causes and outcomes.
- Identifying potential causes and testing them against available evidence.
- Distinguishing assumptions and possible causes from verified root causes.
- Applying Pareto Analysis to identify the causes with the greatest contribution to a problem.

PRACTICAL APPLICATION OR DISCUSSION

Conduct a structured Root Cause Analysis for an operational problem and identify the primary contributing factors and verified root causes.

DAY 03

Data Analysis and Problem Investigation

- Understanding the role of data in effective problem solving and Root Cause Analysis.
- Identifying relevant data sources and evaluating data quality and reliability.
- Analyzing trends, frequency, patterns, and recurring problem characteristics.
- Understanding process variation and its relationship with operational performance.
- Using evidence to evaluate relationships between potential causes and observed outcomes.
- Investigating non-conformities, errors, incidents, failures, and recurring operational issues.
- Analyzing problems associated with processes, procedures, systems, and organizational practices.
- Validating hypotheses before confirming a root cause.
- Using structured investigation methods to prevent premature conclusions.

PRACTICAL APPLICATION OR DISCUSSION

Analyze a practical operational dataset to identify trends, recurring patterns, significant contributing factors, and potential root causes.

DAY 04

Solution Design and Corrective Action Planning

- Moving from problem diagnosis to effective solution development.
- Defining the characteristics of effective, sustainable, and measurable solutions.
- Developing multiple solution alternatives for verified root causes.
- Evaluating solutions according to impact, cost, risk, feasibility, and implementation requirements.
- Designing corrective actions and preventive actions.
- Distinguishing sustainable solutions from temporary fixes and symptom-based responses.
- Assessing risks and unintended consequences associated with proposed solutions.
- Assigning responsibilities and identifying resources required for implementation.
- Establishing performance measures to evaluate solution effectiveness.

DAY 04 — CONTINUED

PRACTICAL APPLICATION OR DISCUSSION

Develop and evaluate alternative solutions for a selected workplace problem and recommend the most appropriate corrective action.

DAY 05**Implementation, Verification, and Sustainable Problem Solving**

- Developing an integrated implementation plan for corrective and preventive actions.
- Establishing responsibilities, milestones, resources, and accountability mechanisms.
- Managing stakeholder involvement during problem resolution and corrective action implementation.
- Monitoring implementation progress and addressing barriers to successful execution.
- Measuring corrective action effectiveness against defined baselines and performance targets.
- Verifying that the root cause has been addressed and the problem does not recur.
- Documenting lessons learned and converting problem-solving experience into organizational knowledge.
- Integrating Root Cause Analysis with continuous improvement, quality management, and operational excellence.
- Establishing early-warning mechanisms to identify emerging problems before they escalate.
- Strengthening organizational problem-solving culture through structured analysis and evidence-based decisions.

FINAL WORKSHOP, ACTION PLAN, OR IMPLEMENTATION EXERCISE

Prepare and present a complete Root Cause Analysis and Problem-Solving Action Plan for a selected workplace problem, including problem definition, evidence analysis, root causes, solution evaluation, corrective and preventive actions, performance indicators, implementation responsibilities, and follow-up mechanisms.



Register or Request More Information

Course page: <https://quest-training.com/courses/root-cause-analysis-problem-solving-techniques-training-course>

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