# Advanced Troubleshooting & Root Cause Analysis for Power Plant Operations

MEERIM VISIONARY TRAINING (FZE)
INSPIRING AMBITION AND SUCCESS

## Why Organizations Should Invest in This Course?

- Reduced Forced Outages
- Lower Maintenance & Repair Costs
- Improved Plant Reliability & Availability
- Safer Plant Operations
- Knowledge Retention & Standardization
- Career Advancement: Troubleshooting capability is a key differentiator for promotions

*Power plants don't fail because of equipment alone; they fail because problems are misdiagnosed or handled late.*

## Training Program

5 DAYS

Online

**Thermal Power Plants, Combined Cycle Power Plants, Gas Turbine Plants, Steam Power Plants, Cogeneration Units**

www.mvtuae.com

TECHNICAL PROPOSAL

# ADVANCED TROUBLESHOOTING & ROOT CAUSE ANALYSIS FOR POWER PLANT OPERATIONS

## Training Audience:

- Power Plant Operators
- Mechanical Engineers
- Maintenance & Reliability Engineers
- Shift Supervisors & Senior Technicians

## Training Overview:

This course equips participants with structured troubleshooting methodologies to rapidly identify, analyze, and resolve operational and mechanical problems in power plants. The program bridges operations, mechanical systems, and maintenance logic, enabling participants to minimize downtime, prevent repeated failures, and improve plant reliability.

Real plant case studies, failure scenarios, and step-by-step diagnostic logic are emphasized throughout the program.

## Training Objectives:

- Apply systematic troubleshooting techniques under normal and emergency conditions
- Identify root causes of recurring equipment failures
- Diagnose mechanical, operational, and system-level issues
- Interpret operational data, alarms, and trends effectively
- Reduce forced outages and unplanned shutdowns
- Improve coordination between operations and maintenance teams
- Implement corrective and preventive actions

## Organizational Benefits:

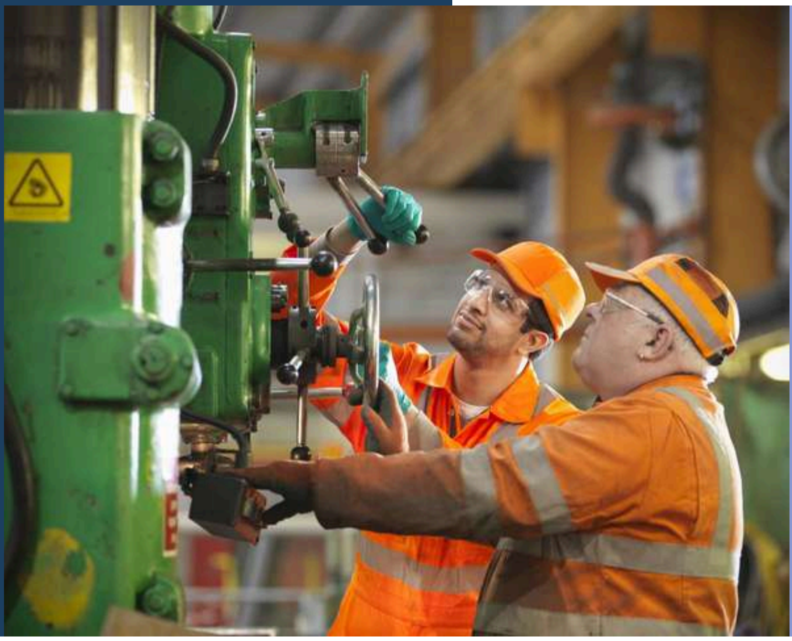
- Reduced downtime and forced outages
- Faster fault isolation and resolution
- Improved safety and operational reliability
- Stronger operator–engineer collaboration
- Long-term performance improvement

## Training Methodology:

- Instructor-led interactive sessions
- Real power plant failure case studies
- Cause-and-effect analysis workshops
- Alarm & trip scenario simulations
- Group troubleshooting exercises
- Practical decision-making frameworks
- Q&A, group discussions
- Training Certificate of Completion

## Personal Benefits:

- Faster & Confident Decision-Making
- Strong Troubleshooting Mindset
- Reduced Stress During Plant Upsets
- Improved Technical Competence
- Troubleshooting capability is a key differentiator for promotions
- Better Communication with Maintenance Teams



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# Training Modules:

**Day 1 – Fundamentals of Troubleshooting in Power Plants**

- Power plant systems overview (mechanical & operational interfaces)
- Common causes of power plant failures
- Troubleshooting vs. repair vs. maintenance
- Problem-solving logic and decision trees
- Symptom vs. root cause identification
- Introduction to Root Cause Analysis (RCA)
- Failure modes and early warning signs

**Day 2 – Mechanical Equipment Troubleshooting (Rotating and static equipment)**

- Pumps troubleshooting (cavitation, vibration, seal failures)
- Compressors and fans failure analysis
- Steam & gas turbines operational problems
- Bearings, lubrication systems & shaft alignment issues
- Heat exchangers & condensers performance problems
- Valves and actuators malfunction diagnosis

**Day 3 – Process & Operational Troubleshooting and plant performance**

- Abnormal operating conditions diagnosis
- Startup, shutdown, and load change problems
- Boiler & HRSG troubleshooting (drum level, tube leaks, carryover)
- Steam cycle efficiency problems
- Cooling water & auxiliary systems failures
- Alarm management and operator response

**Day 4 – Advanced Troubleshooting & Root Cause Analysis**

- Advanced RCA tools (5 Why, Fishbone, Fault Tree)
- Reliability-centered troubleshooting
- Human error & procedural failures
- Design, operation, and maintenance interaction
- Condition monitoring data interpretation
- Corrective vs. preventive action planning

**Day 5 – Integrated Case Studies & Emergency Response**

- Emergency troubleshooting under time pressure
- Trip analysis and recovery planning
- Plant protection systems overview
- Coordination between control room & field teams
- Documentation and reporting best practices
- Lessons learned & continuous improvement

# TALK TO US

MEERIM VISIONARY TRAINING (FZE)

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MEERIM Visionary Training FZE:
Mobius Institute: An Authorized Training & Examination Center

info@mvtuae.com +971 50 6525 978 www.@mvtuae.com

Rolex Tower Level 9B Office B46-067, Sheikh Zayed Road, Dubai, UAE.

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