Best Technology Soultions **(BTS)**

Training Program

Certified Maintenance & Reliability Technician (CMRT)

Program Overview

This Maintenance and Reliability Technicians Best Practices course is designed to give new and veteran maintenance technicians an overview of the knowledge required to become a Certified Maintenance and Reliability Technician (CMRT). The course covers the four domains of practice and knowledge proficiency required of a CMRT.

Learning Outcomes:

Course attendees will gain knowledge and proficiency in four specific areas of maintenance and reliability practice to help them prepare for certification.

- Maintenance Practices – General maintenance activities related to safe and effective performance of maintenance activities
- Preventive and Predictive Maintenance – Best practices in PM, condition monitoring, and lubrication
- Troubleshooting and Analysis – Best practices for performing troubleshooting activities related to breakdowns and continuing equipment issues
- Corrective Maintenance – Best practices for performing corrective maintenance activities designed to restore equipment to full function

Who should attend?

Individuals who either supervise or are interested in becoming Certified Maintenance and Reliabilty Technicians will benefit from attending this course.

Level of the Course

(Foundation/Intermediate/Advanced) and Prerequisites for Attending the Course (if the level is Intermediate/Advanced):

- This is a foundation level course

Training Methodology

This course will be presented using a combination of lecture, individual exercises, group exercises, and interactive computer based exercises.

Program Outline

Day 1:

Domain I: Maintenance Practices

- Safety, health, and environmental standards and practices
- Work scheduling and interfacing with production
- Lockout/tag out (LOTO) procedures
- Inspection and use of special equipment and tools
- Use of measuring tools such as micrometers, torque wrenches, etc.
- Best practices for handling maintenance materials
- Housekeeping best practices
- Documentation of maintenance activities

Day 2

Doman II: Preventive and Predictive Maintenance (Part 1)

- Performing preventive and predictive maintenance activities
    - Preventive maintenance inspections
    - Writing inspection specifications
    - TPM Concepts of PM/PdM
        - Autonomous Maintenance
        - Essential Care and Condition Monitoring for Operations
        - Essential Care and Condition Monitoring for First Line Maintenance
- Best practices for maintenance of protective systems
    - Recognizing hidden failures
    - Rebuild versus replace decisions

Doman II: Preventive and Predictive Maintenance (Part 2)

- Application of predictive maintenance technologies
  - Vibration analysis
  - Thermography
  - Ultrasound
  - Lubricant analysis
- Lubrication best practices
  - Proper application
  - Maintaining required cleanliness

Day 3

Domain III: Troubleshooting and Analysis

- Working with production personnel to gather knowledge about problems
- Verifying the problem
- Using technical documentation
- Reviewing maintenance history
- Identifying the cause of the problem
  - Root Cause Analysis
  - Physical versus human and systemic causes

Day 4

Domain IV: Corrective Maintenance

- Precision Maintenance Methods
  - Quality assurance for maintenance work
  - Quality control for maintenance
  - Writing maintenance task instructions
  - Maintenance personnel qualifications
  - Training for precision and workmanship
- Tools and Methods for Precision Maintenance
  - Precision Alignment
    - Rotating Equipment
    - Flanged Piping
  - Precision in Lubrication
  - Precision in Assembly
    - Mechanical Equipment
    - Electrical Equipment
- Verifying the “fix”
  - System testing
  - Verifying work quality

Day 5

- Moc exam Test & Practice