CONCEPT

Maintenance Procedures and Work Instructions: Task Analysis, Precision Steps and Walk-Downs

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Introduction:

Maintenance procedures that are vague, out of date or written far from the equipment lead to missed steps, wrong torque values, incomplete isolations and repeat failures after overhauls. Technicians then work from memory, and quality varies between crews and shifts. This Core Concept course equips the people who write maintenance work instructions to analyse equipment tasks, set out steps with warnings, hold points and precision values, link each document to its job plan and prove it at the machine with technicians. Participants leave with a Validated Maintenance Procedure Set.

Course Objectives:

- Classify maintenance tasks into preventive routines, corrective repair, overhaul, energy isolation and calibration procedures and select the right document type for each
- Break down a maintenance job with a task analysis worksheet into steps, hazards, tools, spares and required skills before drafting
- Write maintenance work instructions with numbered steps, warnings, cautions, hold points, sign-off boxes and annotated photographs that technicians follow at the equipment
- Specify precision values such as torque sequences, shaft alignment tolerances, clearances and acceptance readings so that every craftsperson reaches the same result
- Link each procedure to its CMMS job plan, task list and spare parts, and prove it through a walk-down with the technicians who will use it
- Control procedure revisions, schedule periodic reviews and track effectiveness indicators such as rework and procedure-related findings

Target Audience:

- Planning staff who prepare maintenance job plans and attach instructions to work orders
- Maintenance and reliability engineering staff who define task content, tolerances and overhaul scopes
- Maintenance supervisors and senior craftspeople who carry out, check and sign off equipment work
- Technical authors and document controllers who format, issue and revise maintenance documents
- Instrument and calibration staff who write test and adjustment routines
- Safety staff who review isolation and permit content inside maintenance instructions

Course Outline:

Day 1: Why Maintenance Procedures Fail and the Procedure Library Review

- Failure Patterns of Maintenance Documents: Missing Steps, Ambiguous Values and Unused Manuals
- Human Performance Overview: Slips, Lapses and Memory Load During Maintenance Tasks
- Maintenance Document Hierarchy: Strategy, Procedure, Work Instruction and Checklist
- Planned Maintenance Triggers: Calendar, Running Hours and Condition-Based Routines
- Procedure Library Health Check with a Coverage and Currency Register

Day 2: Procedure Types, Instruction Principles and Task Analysis

- Instruction Design Principles in IEC/IEEE 82079-1:2019
- Procedure Type Selection: PM Routine, Corrective Repair, Overhaul and Calibration
- Energy Isolation Procedures: Identify, Isolate, Lock, Tag and Verify Zero Energy
- Maintenance Task Analysis Worksheet: Steps, Hazards, Tools, Spares and Skills
- Criticality-Based Detail Level: Checklist, Step List or Full Instruction

Day 3: Writing Maintenance Work Instructions and Precision Specifications

- Maintenance Instruction Template: Scope, Prerequisites, Steps and Restoration
- Warnings, Cautions, Notes and Hold Points with Witness Sign-Off Boxes
- One Action per Step Writing with Annotated Photographs and Exploded Views
- Torque Values, Tightening Sequences and Fastener Lubrication Statements
- Shaft Alignment Tolerances, Clearances and As-Found and As-Left Readings

Day 4: CMMS Job Plans, Document Control and Procedure Effectiveness

- Procedure-to-Job Plan Linking: Task Lists, Craft Hours and Spare Parts Kits
- Controlled Copies at the Workface: Revision Status, Mobile Access and Obsolete Copy Removal
- Management of Change Triggers for Procedure Revision After Modifications
- Periodic Review Cycle and Technician Feedback Forms
- Procedure Effectiveness Indicators: Rework, Repeat Failures and Deviation Reports

Day 5: Equipment Walk-Downs and the Validated Maintenance Procedure Set

- Pump Overhaul Instruction Walk-Down with Technicians
- Electrical Motor Isolation and Restoration Walk-Down Against a Draft Procedure
- Instrument Calibration Routine Dry Run and As-Left Record Check
- Walk-Down Findings Log and Procedure Correction Round
- Validated Maintenance Procedure Set Assembly and Peer Review

Skills You Will Gain:

- Maintenance Task Analysis
- Work Instruction Authoring
- Hold Point Design
- Precision Maintenance Specification
- Energy Isolation Documentation
- Job Plan Integration
- Procedure Walk-Down Validation
- Procedure Revision Control

Why Attend This Course:

- Return with a Validated Maintenance Procedure Set already tested at the equipment with technicians
- Cut rework after overhauls and repairs because torque, alignment and clearance values are written where crews need them
- Give planners instructions that attach directly to job plans, so work orders reach the field complete
- Compare procedure practice with maintenance teams from oil and gas, utilities, water, manufacturing and facilities

Conclusion:

A maintenance procedure earns its place only when technicians use it at the equipment and get the same result every time. The course moves from why documents fail and how the library stands, through procedure types, isolation practice and task analysis, to writing steps, hold points and precision values, and then to job plan links, revision control and effectiveness measures. The final day tests draft instructions through equipment walk-downs and produces a Validated Maintenance Procedure Set for use as the model for the rest of the library.