



## Maintenance Operator Skills Training - Mechanical

3 Weeks

### Who Should Attend?

Designed for employees that perform Operations or Maintenance work on Electric Power Generation, Transmission, or Distribution installations.

### Course Description:

This course is excellent for entry level personnel as well as cross-training different disciplines and others with the need to learn the proper technique and safety for using hand tools and power tools. Emphasis is placed on personal Safety as well as process Safety.

Each Presentation Begins with learning objectives that cover the course contents. The Power Point Presentations are 50% Instructor led and 50% hands on. After each presentation there is a summary and discussion on the material that was covered with a review Quiz. For each week of training there will be a weekly exam and a final exam at the end of the 3 week Workshop. The students are also required to successfully complete a practical factors check list demonstrating their ability to perform the instruction taught in the class.

The students are encouraged to ask questions regarding the use or safety of any of the tools presented. The Instructors have many years of Power Plant experience that allows them to give practical answers and examples to broaden the students understanding.

The students will learn how to safely and properly use tools in real-life situations. Each student receives a course text they get to keep for reference.

### Learning Objectives:

- Proper basic hand tool usage and operation.
- Coupling alignment with a straight edge and feeler gauges, with taper gauges and dial indicator.
- Saw to layout lines on a band saw.
- Reaming holes to size on a drill press.
- Make gaskets.
- Electric powered lifting devices.

**Prerequisites:** None.

**TDSTI**

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### Week 1

- Proper basic hand tool usage and operation.
- Proper basic power tool usage and operation.
- Identifying the proper application for basic hand tools.
- Inspecting hand tools prior to use to ensure safe working condition.
- Explain the action to take if tool is found to be unsafe.
- Identify the time when tool guards can be removed.
- Verify a bench grinder is properly mounted prior to use.
- Inspecting and adjusting the guards on a bench grinder.
- Inspecting a grinding wheel before installing on a bench grinder.
- Determining if the grinding wheel is compatible with the speed of the bench grinder.
- Requirements for double insulated or ground fault protection when using electric hand tools.
- How a Power tool is made safe for repairs or changing attachments.
- Using a tool retainer when using pneumatic tools.
- Refueling a fueled power tool.
- Locations where a fueled power tool may not be used.
- Coupling alignment with a straight edge and feeler gauges, with taper gauges and dial indicator.

#### Tools covered:

- Screwdrivers
- Pliers
- Combination wrenches
- Spanner wrenches
- Sockets
- Ratchets
- Adjustable wrenches
- Hammers
- Punches
- Vises and Clamps
- Hand Files
- Hacksaw
- Outside Micrometer
- Vernier Caliper
- Inside Micrometer

- Small Hole Gauge
- Telescoping Gauge
- Depth rule, Depth
- Micrometer

### Week 2:

- ESaw to layout lines on a band saw
- Rough layout of a work piece
- Measure with a steel rule
- Measure with a protractor
- Measure with a dial indicator
- Measure with a wire and sheet metal gauge
- Measure threads with a go/no go gauge
- Drill holes to layout lines
- Drill holes through the center of round Stock
- Countersink, counterbore and spotface on a drill press
- Reaming holes to size on a drill press
- Start tap holes in a drill press using chuck as center
- Tapping threads by hand
- Cutting threads by hand using a threading die and tap
- Tap holes in a drill press
- Straight and draw filing of metal
- Size holes with hand reamers
- Hand methods of deburring parts
- Hand method of removing broken studs

#### Tools covered:

- Band Saw
- Compass
- Scribe
- Steel rule
- Protractor
- Dial indicator
- Wire and Sheet metal gauge
- Go-No-Go gauge
- Drill bits
- Drill Press
- Countersink bits
- Counterbore bits
- Reamers

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## Technical Diagnostic Services Training Institute

- Tap and Die set
- Ez- outs
- Files Hand Reamers

### **Week 3:**

- Make gaskets
- Make "O" rings
- Match/Size "O" rings
- Remove sealing mediums
- Install sealing mediums
- Cutting threads by machine using a threaded die
- Demonstrate the proper use of the riggers handbook
- Perform various types of rigging techniques safely
- Manually operated lifting devices
- Electric powered lifting devices
- Hydraulic powered lifting devices
- Air operated lifting devices
- Mobile work platforms
- Replace drive belts
- Lubrication techniques for various bearings

- O-Ring Kit
- Caliper
- 6 inch rule
- Packing removal tool
- Pipe Threading Machine
- Lifting sling assortment
- Rigging screws and eye bolts
- Hydraulic lift
- Chain Hoist
- Come-a-long
- Wire Rope
- Electric Hoist
- Tugger
- Mobile Work Platform
- Combination Wrenches
- ½ inch Socket and Ratchet
- Grease GunFLUKE 1520 Megohmmeter

### Tools covered:

- Gasket Kit

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