

BASIC SKILLS	MACHINE TECHNOLOGY	MECHANICAL MAINTENANCE	ELECTRICAL MAINTENANCE	INSTRUMENTATION & CONTROL		
<b>BASIC SKILLS</b> 17 Training Hours <b>Workplace Reading</b> ▶ Basic Skills ▶ Literal Comprehension: Main Idea ▶ Literal Comprehension: Relationships ▶ Inference ▶ Study Skills <b>Workplace Mathematics</b> ▶ Whole Numbers ▶ Fractions ▶ Decimals ▶ Introduction to Algebra <b>Mechanical Print Reading</b> ▶ Orthographic Projection ▶ Drawing Format & Dimensioning ▶ Drawing Types & Symbols ▶ Thread Specifications <b>Gaging &amp; Measurement</b> ▶ Types & Fundamentals ▶ Procedures & Operation <b>Rigging</b> ▶ Equipment Basics ▶ Operations	<b>BASIC MACHINE TECHNOLOGY</b> 10 Training Hours ▶ Safety Procedures & Guidelines ▶ Hand Tools & Their Use ▶ The Use of Measuring Tools ▶ The Vertical Milling Machine: Parts & Operation ▶ Vernier Caliper & Vernier Protractor ▶ The Pedestal Grinder ▶ Sharpening Drill Bits by Hand or the Drill Press ▶ Drill Presses: Sensitive & Radial Arm ▶ Drill Press Operations ▶ Vertical Band Saws: Parts, Accessories & Operation <b>BASIC ENGINE LATHE</b> 14 Training Hours ▶ Identification of Parts & Care of the Engine Lathe ▶ Engine Lathe Accessories ▶ Cutting Speeds & Feeds for Lathe-Ferrous, Non-Ferrous Plastics ▶ Grinding a Right-Hand Roughing Tool ▶ Grinding a Round-Nose Finishing Tool ▶ Mounting & Truing Work in the Four-Jaw Independent Chuck ▶ Three Methods of Facing Work to Length ▶ Straight Turning Work of Two Diameters ▶ Turning Between Centers ▶ Drilling, Boring & Reaming Work Held in a Lathe Chuck ▶ Turning a Radius ▶ Taper Turning on the Lathe ▶ Filing & Polishing on the Engine Lathe ▶ Knurling on the Lathe <b>COMPUTER NUMERICAL CONTROL</b> 15 Training Hours ▶ Introduction ▶ Preparing for Programming ▶ Absolute & Incremental Positioning ▶ One- & Two-Axis Linear Milling ▶ Three-Axis Linear & Circular Milling ▶ Completed Milling Programs ▶ Drilling, Boring & Spot Facing ▶ Subroutines ▶ Special Cycles ▶ Mirroring ▶ Quick Coding Procedures ▶ Polar Coordinate Programming ▶ Scaling & Engraving Programming ▶ Rotation ▶ Cutter <b>COMPUTER NUMERICAL CONTROL LATHE</b> 15 Training Hours ▶ CNC Lathe Safety & Machine Configuration ▶ The Coordinate Systems with Part & Machine Zero ▶ CNC Tooling, Workholding & Offsets ▶ Introduction to Programming for the CNC Lathe ▶ Rapid Positioning & Interpolation Commands ▶ Spindle Speeds & Feed Commands ▶ Tool Nose Compensation ▶ OD/ID Stock Removal ▶ Irregular Path Stock Removal ▶ End Face Stock Removal ▶ Multiple-Pass, Thread-Cutting Cycle ▶ Drilling Canned Cycles ▶ Tapping Canned Cycles ▶ Boring Canned Cycles ▶ Visual Quick Code	<b>FLUID POWER</b> 33 Training Hours <b>Hydraulics</b> ▶ Harnessing Hydraulic Power ▶ The Hydraulic Circuit ▶ Pumps & Actuators ▶ Control Valves ▶ Hydraulic Fluid ▶ Hydraulic Systems Safety & Maintenance ▶ Hydraulic System Troubleshooting <b>Industrial Hydraulics</b> ▶ Basic Principles & Application ▶ Types & Concepts ▶ Function & Operating Principles ▶ Maintenance & Troubleshooting <b>Hydraulic Power Systems &amp; Troubleshooting</b> ▶ Identification & Operation ▶ Troubleshooting Techniques <b>Valve Basics</b> ▶ Shutoff Valve Designs & Application Consideration ▶ Selecting Shutoff Valves ▶ Installing Shutoff Valves ▶ Maintaining Shutoff Valves <b>Centrifugal Pumps</b> ▶ Design & Function ▶ System Characteristics & Selection ▶ Operation & Maintenance ▶ Troubleshooting & Disassembly ▶ Reassembly & Installation <b>Pneumatics</b> ▶ The Power of Compressed Air ▶ The Pneumatic Circuit ▶ Processing Air ▶ Using Compressed Air ▶ Pneumatic Control Valves ▶ Working Safely with Pneumatic Systems ▶ Pneumatic System Maintenance ▶ Troubleshooting Pneumatic Systems <b>Industrial Seals</b> ▶ Types, Materials & Properties ▶ Gaskets & Packings: Inspection & Installation ▶ Mechanical Face Seals: Troubleshooting & Installation <b>BOILER OPERATION &amp; CONTROL</b> 5 Training Hours ▶ Introduction to Boilers ▶ Boiler Design & Construction ▶ Boiler Feedwater & Steam ▶ Boiler Fuel & Air ▶ Boiler Operation	<b>POWER TRANSMISSION</b> 14 Training Hours <b>Machinery Lubrication</b> ▶ Lubricating Oil: Types, Properties & Handling ▶ Lubricating Oil: Equipment & Procedures ▶ Lubricating Greases: Types, Applications & Equipment <b>Industrial Bearings</b> ▶ Application & Technology ▶ Maintenance & Installation ▶ Troubleshooting <b>Industrial Drives</b> ▶ Belt Drives ▶ Chain Drives ▶ Enclosed Drive Systems ▶ Complete Drive Packages ▶ Gears & Gear Systems ▶ Shaft Joining & Coupling Devices <b>Clutches &amp; Brakes</b> ▶ Types & Applications ▶ Troubleshooting <b>HVAC&amp;R</b> 8 Training Hours ▶ Complete System Troubleshooting ▶ Air Handlers: Mechanical Systems ▶ Air Handlers: Calibration ▶ Chillers: Mechanical Components ▶ Chillers: Leak Check & Electrical ▶ Cooling Towers: Maintenance & Troubleshooting ▶ Condensers: Maintenance & Troubleshooting ▶ Ammonia Refrigeration <b>PIPEFITTING</b> 11 Training Hours ▶ Introduction to Pipefitting ▶ Piping Systems & Standards ▶ Pipe Fittings & Joints ▶ Measuring Pipe & Drawings ▶ Offsets ▶ Manual & Electric Threaded Pipe ▶ Flanged Pipe ▶ Plastic Pipe ▶ Accessories & Specialty Equipment ▶ Tubing ▶ Hoses <b>STEAM TRAPS</b> 3 Training Hours ▶ Types, Principles & Functions ▶ Sizing, Installation & Monitoring ▶ Diagnostics & Troubleshooting	<b>BASIC ELECTRICAL THEORY</b> 18 Training Hours <b>AC/DC Theory</b> ▶ Current ▶ Voltage ▶ Resistance ▶ Ohm's Law ▶ Magnetism ▶ Electrical Measurement ▶ DC Circuits ▶ Inductance & Capacitance ▶ Alternating Current ▶ AC Measurement ▶ Capacitive Circuits ▶ Inductive Circuits ▶ Transformers ▶ Tuned Circuits <b>Applied DC Fundamentals</b> ▶ Voltage, Resistance & Current ▶ Ohm's Law & DC Circuits ▶ Electronic Components & Magnetism ▶ Electronic Schematics & Circuit Analysis <b>INDUSTRIAL ELECTRICITY</b> 7 Training Hours <b>Industrial Electricity</b> ▶ Basic Principles ▶ Basic Motor Controls & Relays ▶ Overload Relays ▶ Time Delay Relays ▶ Schematic Symbols ▶ Schematics & Wiring Diagrams ▶ Starting Methods for Squirrel Cage Motors ▶ Wye-Delta, Synchronous & Wound Rotor Controls ▶ Installing & Troubleshooting Control Systems <b>DC Motors</b> ▶ Basics & Internal Parts ▶ Maintenance & Troubleshooting <b>DC Motor Controllers</b> ▶ Controller Function & Operation ▶ Maintenance Procedures & Applications <b>MOTOR DRIVES</b> 6 Training Hours ▶ Motor Drive Identification ▶ Open & Closed Loop Systems ▶ Variable Speed AC Drives ▶ Servo & Stepper Motors ▶ AC Motor Operation ▶ AC Drive Selection & Setup <b>ELECTRONICS</b> 6 Training Hours <b>Basic Electronic Components &amp; Their Measurement</b> ▶ Types & Diagrams ▶ Controls & Applications ▶ Operation & Troubleshooting <b>Electronic Circuits</b> ▶ Basic Principles ▶ Characteristics & Operation ▶ Logic Fundamentals, Types & Application <b>MECHANICAL ELECTRICAL CONTROL SYSTEMS</b> 7 Training Hours ▶ Introduction to Control Schematics ▶ Creating Schematics ▶ Electrical Lockout ▶ Design & Troubleshooting ▶ Energy Management ▶ Electronic Controls ▶ Responsive Systems <b>Electrical Measurement</b> 1 Training Hour ▶ Basic Electrical Measurement: Digital Multimeters and Clampmeters	<b>BASIC PROCESS CONTROL</b> 9 Training Hours ▶ Feedback Control ▶ Process Control Modes ▶ Process Characteristics ▶ Process Variables ▶ Instrumentation Symbols ▶ Instrument Loop Diagrams ▶ Piping Instrumentation Drawings ▶ Mechanical Connections ▶ Electrical Connections <b>CALIBRATION &amp; TEST EQUIPMENT</b> 6 Training Hours ▶ Primary Calibration Standards ▶ Pneumatic Test Equipment ▶ Electronic Test Equipment ▶ Oscilloscopes ▶ Instrumentation Errors ▶ Instrumentation Calibration <b>CONTINUOUS PROCESS CONTROL</b> 4 Training Hours ▶ Principles of Continuous Control ▶ Applications of Heat Exchanger Control ▶ Applications of Distillation Control ▶ Applications of pH Control <b>ELECTRONIC MAINTENANCE</b> 12 Training Hours ▶ Solid State Devices ▶ Integrated Circuits & Op Amps ▶ Sensor & Transducer Principles ▶ Transmitters ▶ Transducers ▶ Controllers, Indicators & Recorders ▶ Tuning ▶ Sampling Systems & Gas Chromatograph Valves ▶ Gas Chromatograph Ovens & Controllers ▶ Spectroscopic Analyzers ▶ Electrochemical Analyzers ▶ Instrument Loop Troubleshooting <b>PROCESS MEASUREMENT</b> 8 Training Hours ▶ Temperature 1: Thermometers & Thermocouples ▶ Temperature 2: Resistance & Radiation Devices ▶ Pressure 1: Manometers & Gages ▶ Pressure 2: Indicators & Transmitters ▶ Level 1: Level Measurement & Gages ▶ Level 2: Level Indicators & Transmitters ▶ Flow 1: Flow Measurement ▶ Flow 2: Flow Sensors <b>SMART DIGITAL INSTRUMENTATION</b> 4 Training Hours ▶ Understanding HART Protocol ▶ Applications of Smart Field Devices ▶ Configuring, Calibrating & Testing Smart Field Devices ▶ FOUNDATION™ Fieldbus <b>SUSTAINABILITY</b> <b>DuPont™ Energy Efficiency</b> 16 Training Hours ▶ Energy Smart ▶ Energy Management Best Practices ▶ Energy System Instrumentation & Controls ▶ Theory of Steam Generation ▶ Fuels & the Combustion Process ▶ Boilers & Auxiliaries ▶ Emission Control & Ash Handling ▶ Steam Distribution ▶ Steam Turbines & Condensers ▶ Electricity Generation & Distribution ▶ Pumping Systems ▶ Cooling Towers ▶ Water Treatment ▶ Compressed Air ▶ Refrigeration ▶ HVAC & Indoor Air Quality	<b>CONTROL VALVES &amp; ACTUATORS</b> 4 Training Hours ▶ Basics & Function ▶ Types & Design ▶ Fundamentals & Selection ▶ Sizing & Installation <b>ControlLogix</b> 9 Training Hours <b>ControlLogix</b> ▶ Introduction to the ControlLogix PLC Family ▶ Introduction to RSLogix™ 5000 Software ▶ Creating & Using Tags & the Program Editor ▶ Basic Instructions ▶ Advanced Programming & Analog Devices ▶ PLC Troubleshooting <b>Using RSLogix™</b> ▶ Configuring Hardware & Software ▶ Programming & Editing ▶ Testing & Troubleshooting <b>PROGRAMMABLE LOGIC CONTROLLERS</b> 5 Training Hours ▶ Fundamentals ▶ Programming ▶ Inputs & Outputs ▶ Troubleshooting ▶ Communications & Advanced Programming <b>FIELDBUS</b> 14 Training Hours ▶ Fieldbus Curriculum Overview ▶ The Road to Fieldbus ▶ Fieldbus Wiring ▶ Fieldbus Devices ▶ Introduction to Configuration ▶ Introduction to Control Strategy ▶ Control Strategy ▶ Data Flow & Communications ▶ Fieldbus Calibration ▶ OPC ▶ Introduction to Troubleshooting ▶ Troubleshooting ▶ Fieldbus Maintenance ▶ Maintenance Exercises
<b>PROCESS OPERATIONS</b> <b>APPLIED PHYSICS</b> 4 Training Hours ▶ Quantifying Physical Characteristics ▶ Properties of Fluids ▶ Physical Force ▶ Temperature & Heat <b>APPLIED CHEMISTRY</b> 3 Training Hours ▶ General Chemistry ▶ Inorganic Chemistry of Water ▶ Organic Chemistry <b>OPERATORS &amp; THEIR RESPONSIBILITIES</b> 6 Training Hours ▶ Normal Operations ▶ Startup Operations ▶ Abnormal Operations ▶ Shutdown Operations ▶ Hand Tools ▶ Equipment Care	<b>PREDICTIVE MAINTENANCE</b> <b>VIBRATION ANALYSIS</b> 6 Training Hours ▶ Predictive Maintenance & Machine Vibration ▶ Machine Vibration, Basic Theory ▶ Preparing for Data Collection ▶ The Data Processing System ▶ Data Collection ▶ Data Analysis <b>MACHINERY OIL ANALYSIS</b> 3 Training Hours ▶ Fundamentals & Methods ▶ Strategies, Options & Testing ▶ Establishing an Effective Program <b>ULTRASONICS</b> 3 Training Hours ▶ Basic Principles ▶ Leak Detection ▶ Mechanical & Electrical Inspection <b>THERMOGRAPHY</b> 3 Training Hours ▶ Basic Operation ▶ Operating Procedures & Implementation ▶ Practical Applications <b>ADVANCED VIBRATION: AC INDUCTION MOTORS</b> 2 Training Hours ▶ AC Induction Motors, Part I ▶ AC Induction Motors, Part II	<b>GENERAL MAINTENANCE</b> <b>OPERATOR INSPECTION</b> 9 Training Hours ▶ Pneumatic System Inspection ▶ Vacuum System Inspection ▶ Air Compression System Inspection ▶ Fasteners & Equipment Structure Inspection ▶ Electrical Equipment Control System Inspection ▶ Motor Drive System Inspection ▶ Belt Drive, Chain Drive & Gear Box Inspection ▶ Clutches & Brakes Inspection ▶ Lubrication System Inspection <b>MAINTENANCE TROUBLESHOOTING</b> 5 Training Hours ▶ Troubleshooting Procedures ▶ Power Distribution & Lighting Systems ▶ Motors & Motor Controls ▶ Pumps & Compressors ▶ Hydraulic Circuits & HVAC <b>MAINTENANCE PRINCIPLES</b> 1 Training Hour ▶ Maintenance Principles	<b>DRESSER-RAND®*</b> <b>DRESSER-RAND®</b> 24 Training Hours <b>Reciprocating Products</b> ▶ Recip-Compressor Major Components ▶ Recip-Compressor Theory ▶ Recip-Compressor Piston End-Clearance ▶ Recip-Compressor Rod Run-Out ▶ Recip-Compressor Frame Lubrication ▶ Recip/Engine-Crankshaft Web Deflection ▶ Recip-Compressor Rod Packing Fundamentals ▶ Recip-Compressor Rod Packing Reconditioning ▶ Recip-Compressor Wedge Ring Packing ▶ Recip-Compressor Divider Block Cylinder & Packing Lubrication ▶ Recip-Compressor Pump to Point Cylinder & Packing Lubrication ▶ Recip-Compressor Set Screw Type Valve Cover & Bolt Torque ▶ Recip-Compressor Crosshead & Piston Supernut ▶ Engine-Major Components ▶ Engine-Two Cycle Theory ▶ Engine-Four Cycle Theory ▶ Engine-Pre-Ignition & Detonation ▶ Engine-Balancing Firing Pressures <b>Turbo Products</b> ▶ Centrifugal-Compressor Types ▶ Centrifugal-Compressor Surge <b>Steam Products</b> ▶ Steam-Turbine Major Components ▶ Steam-Turbine Operation ▶ Steam-Turbine Overspeed Trip Systems			

## 362 Training Hours

eLearning, DVD & Print Formats Available

Note: Some titles are available in limited formats.

Some titles are also available in Spanish.



All interactive online courses are API certified except as noted by an asterisk (\*).