# AVAILABLE ONLINE TECHNICAL SKILLS TRAINING COURSES

Training time is approximately one hour per *Lesson* for Interactive Courseware.

| Course# | Course Name and Description | Number of Lessons | Online Course Avail. |
|---|---|---|---|
| **FUNDAMENTALS (Series 100)** | | | |
| 101 | Reading Blueprints<br>Introduction to Blueprints; Machine Parts; Machine Drawings; Sheet Metal Drawings; Building Drawings; Hydraulic and Pneumatic Drawings; Piping and Plumbing Drawings; Electrical Drawings; A/C and Refrigeration Drawings; Sketching | 10 | √ |
| 102 | Reading Schematics and Symbols<br>Introduction to Schematics and Symbols; Symbols on Schematics; Electrical Symbols; Piping Symbols; Hydraulic and Pneumatic Symbols; Hydraulic and Pneumatic Diagrams; A/C and Refrigeration Systems; Welding and Joining Symbols | 10 | √ |
| 103 | Mathematics in the Plant<br>Whole Numbers; Common Fractions; Decimal Fractions; Ratios and Proportions; Powers and Roots; Calculators; Geometry; Algebra; Using Formulas; Trigonometry | 10 | √ |
| 104 | Making Measurements<br>Units of Measurement; Metric Measurement; Linear Measurement; Comparison and Surface Measurement; Measuring Bulk Materials; Measuring Motion; Measuring Forces; Measuring Temperature; Measuring Fluids; Measuring Electricity | 10 | √ |
| 105 | Metals in the Plant<br>Introduction to Metals; Properties of Metals; Manufacturing Processes; Iron and Steel; Standard Steels; Heat Treatment; Copper; Aluminum; Magnesium and Titanium; Lead, Nickel, Tin, and Zinc | 10 | √ |
| 106 | Nonmetals in the Plant<br>Introduction to Nonmetals; Plastics; Rubber; Wood; Construction Materials; Insulating Materials; Paints and Coatings; Industrial Chemicals; Adhesives; Carbon | 10 | √ |
| 107 | Hand Tools<br>Measuring Tools; Wrenches and Screwdrivers; Pipefitting Tools; Plumbing Tools; Electrician's Tools; Woodworking Tools; Masonry, Plastering, and Glazing Tools; Sheet Metalworking Tools; Metalworking Tools; Hoisting and Pulling Tools | 10 | √ |
| 108 | Portable Power Tools<br>Electric Drills; Electric Hammers; Pneumatic Drills and Hammers; Screwdrivers, Nutrunners, and Wrenches; Linear-Motion Saws; Circular Saws; Routers and Planes; Electric Sanders; Grinders and Shears; Tool Sharpening | 10 | √ |
| 109.1 | Industrial Safety and Health<br>Introduction to Safety and Health; Government Safety and Health Regulations; Personal Protective Equipment; Chemical Safety; Tool Safety; Material Handling; Working Safely with Machinery; Working Safely with Electricity; Electrical Equipment Protection; Fire Safety; Protecting your Health; A Safe Work Environment | 12 | √ |
| 110 | Troubleshooting Skills<br>Introduction to Troubleshooting; Working with Other People; Troubleshooting Techniques; Aids to Troubleshooting; Preparing for Troubleshooting; Using Schematics and Diagrams; Solving Mechanical Problems; Solving Electrical Problems; Breakdown Maintenance; Planned Maintenance | 10 | √ |
| **ELECTRICAL SYSTEMS (Series 200)** | | | |
| 201 | Basic Electricity and Electronics<br>Introduction to Electricity; Static Electricity; Current Electricity; Magnetism; Current, Resistance, and Potential Difference; Electrical Components; Conductors; DC Circuits; AC Circuits; Electronics | 10 | √ |

| Course# | Course Name and Description | Number of Lessons | Online Course Avail. |
|---|---|---|---|
| 202 | Batteries and DC Circuits<br>Electrochemical Action; Battery Characteristics; Kinds of Batteries; Maintaining Lead-Acid Batteries; Charging Lead-Acid Batteries; Solving Problems in DC Circuits; DC Series Circuits; Parallel Circuits; Series-Parallel Circuits; DC Circuits in Use | 10 | √ |
| 203 | Transformers and AC Circuits<br>Principles of Alternating Current; Mathematics in AC Circuits; Inductance and Inductive Reactance; Capacitance and Capacitive Reactance; Impedance; Power and Energy in AC Circuits; Three-Phase Circuits; Principles of Transformers; Transformer Applications; Maintaining Transformers | 10 | √ |
| 204.1 | Electrical Measuring Instruments<br>Principles of Meter Operation; Ammeters, Voltmeters, and Wattmeters; Resistance Measurement; Multimeters; Oscilloscopes | 5 | √ |
| 205.1 | Electrical Safety and Protection<br>Electrical Hazards; Electrical Safety Equipment; Electrical Safety Procedures; Grounding, Ground Faults, and Short Circuits; Fuses and Circuit Breakers; Motor Protection | 6 | √ |
| 206 | DC Equipment and Controls<br>DC Power in Industry; DC Electromagnets; DC Generators; DC Motors; DC Armatures; DC Relays; DC Controllers; DC Power Supplies; Silicon-Controlled Rectifiers | 10 | √ |
| 207 | Single-Phase Motors<br>Introduction to Single-Phase Motors; Split-Phase Motors; Capacitor Motors; Repulsion Motors; Universal Motors; Special Motors; Synchros; Servos; Motor Installation; Motor Maintenance | 10 | √ |
| 208 | Three-Phase Systems<br>Principles of Three-Phase Motors; Induction Motors; Synchronous Motors; Multispeed Motors; Maintaining Three-Phase Motors; Motor Starters; Three-Phase Motor Controllers; Alternators; Auxiliary Generator Systems; Power Distribution Systems | 10 | √ |
| 209 | AC Control Equipment<br>Motor Starters; Switches and Controls; Limit Switches; Special Control Switches; Timers and Counters; Control Relays; Equipment for Hazardous Locations; Special Motor Controls; Motor control Centers; Control Panel Wiring | 10 | √ |
| 210 | Electrical Troubleshooting<br>Troubleshooting with Electrical Schematics; Troubleshooting with Building Drawings; Troubleshooting with Control Circuits; Troubleshooting Combination Starters; Troubleshooting Control Devices; Troubleshooting Special Controls; Troubleshooting DC Motors; Troubleshooting AC Motors; Troubleshooting Lighting Systems; Saving Time in Troubleshooting | 10 | √ |
| 211 | Electrical Safety in the Workplace—Understanding NFPA 70E®<br>Article 90: Introduction and Purpose; Articles 100 and 105: Terms and Definitions; Article 110: General Requirements for Work Practices; Article 120: Establishing an Electrically Safe Work Condition; Article 130: Work Involving Electrical Hazards; Articles 200-250: Safety-Related Maintenance Requirements; Articles 300-350: Safety Requirements for Special Equipment; Annexes and Supplemental Materials | 8 | √ |
| MECHANICAL SYSTEMS (Series 300) | | | |
| 301 | Basic Mechanics<br>Forces and Motion; Work, Energy and Power; Fluid Mechanics; Simple Machines; Machine Elements; Measurement Tools and Instruments; The Safe Use of Hand Tools; The Safe Use of Portable Power Tools; Fasteners; Friction and Wear | 10 | √ |
| 302 | Lubricants and Lubrication<br>Principles of Lubrication; Characteristics of Lubricants; Additives, Lubricating Action, and Bearing Lubrication; Oils and Their Applications; General-Purpose Greases; Special-Purpose Greases and Dry-Film Lubricants; Lubrication Systems and Methods; Automatic Lubrication Methods; Lubricant Storage and Handling; Lubrication Management | 10 | √ |

| Course# | Course Name and Description | Number of Lessons | Online Course Avail. |
|---|---|---|---|
| 303.1 | Power Transmission Equipment<br>Belt Drives; Chain Drives; Gears; Gear Drives; Adjustable-Speed Drives; Shaft Alignment; Shaft Coupling Devices; Clutches and Brakes | 8 | √ |
| 304 | Bearings<br>Bearings and Shafts; Plain Journal Bearings I; Plain Journal Bearings II; Antifriction Bearings I; Antifriction Bearings II; Ball and Roller Bearings; Specialized Bearings; Bearing Seals; Lubrication; Bearing Maintenance | 10 | √ |
| 305 | Pumps<br>Pump Development and Application; Basic Pump Hydraulics; End-Suction Centrifugal Pumps; Propeller and Turbine Pumps; Rotary Pumps; Reciprocating Pumps; Metering Pumps; Special-Purpose Pumps; Packings and Seals; Pump Maintenance | 10 | √ |
| 306 | Piping Systems<br>Introduction to Piping Systems; Metal Piping; Nonmetallic Piping; Tubing; Hoses; Fittings; Common Valves; Special Valves; Strainers, Filters and Traps; Accessories | 10 | √ |
| 307 | Basic Hydraulics<br>Principles of Hydraulics; Hydraulic Fluids; Strainers and Filters; Reservoirs and Accumulators; Hydraulic Pumps; Piping, Tubing, and Fittings; Directional Control Valves; Pressure Control Valves; Cylinders; Hydraulic Motors | 10 | √ |
| 308 | Hydraulic Troubleshooting<br>Hydraulic Systems; Hydraulic Schematic Diagrams; Installing Hydraulic Components; Installing Pipe and Tubes; Selecting Hydraulic Fluids; Planning System Maintenance; Troubleshooting Systems; Troubleshooting Valves; Troubleshooting Cylinders; Troubleshooting Pumps and Motors | 10 | √ |
| 309 | Basic Pneumatics<br>Pneumatic Principles; Reciprocating Compressors; Rotary Compressors; Primary Air Treatment; Secondary Air Treatment; Piping, Hoses, and Tubing; Directional Control Valves; Pressure-Control Valves; Pneumatic Cylinders; Pneumatic Motors and Rotary Actuators | 10 | √ |
| 310 | Pneumatic Troubleshooting<br>Pneumatic Systems; Pneumatic Schematic Diagrams; Installation of System Components; System Maintenance; Determining System Failures; Troubleshooting Air Compressors; Troubleshooting Control Valves; Troubleshooting Cylinders; Troubleshooting Air Motors; Pneumatic/Hydraulic Systems | 10 | √ |
| AIR CONDITIONING AND REFRIGERATION (Series 430) | | | |
| 431 | The Refrigeration Cycle<br>Refrigeration and Air Conditioning Basics; Heat, Pressure, and Change of State; The Basic Refrigeration Cycle; Air Properties and Simple Psychrometrics; Tools, Test Instruments, and Safe Work Practices | 5 | √ |
| 432 | Refrigerants and Refrigerant Oils<br>Physical Properties of Refrigerants; Refrigerant Classifications and Applications; Refrigerants and the Atmosphere; Refrigerants and the TPA; Refrigerant Filters and Driers; Tools and Procedures for Working with Refrigerants; Refrigerant Oils, Oil Maintenance, and Service Procedures | 7 | √ |
| 433 | Compressors<br>Introduction to Compressors; Reciprocating Compressors; Rotary, Helical, and Scroll Compressors; Centrifugal Compressors; Compressor Motors; Compressor Control and Protection; Compressor Maintenance, Troubleshooting, and Repair | 7 | √ |
| 434 | Evaporators and Metering Devices<br>Introduction to Evaporators; Direct Expansion Evaporators and Secondary Refrigeration Systems; Improving Evaporator Performance; Defrosting, Maintaining, and Troubleshooting Evaporators | 5 | √ |
| 435 | Condensers and Cooling Towers<br>Air-Cooled Condensers; Water-Cooled Condensers; Cooling Towers and Spray Ponds; Evaporative Condensers; Controlling Water-Related Problems | 5 | √ |

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|---|---|---|---|
| 436 | Piping<br>Piping Materials and Fittings; Discharge Line; Liquid Line; Suction Line; Piping Systems Maintenance | 5 | √ |
| 437 | Control Systems<br>Introduction to Control Systems; Sensors and Controlled Devices; Automatic Control Systems; Control of Refrigeration and Air-Conditioning Processes; Maintaining and Troubleshooting Controls | 5 | √ |
| 438 | Air-Handling Systems<br>Air Movement and Distribution; Fans and Fan Motors; Ductwork Types, Fabrication, and Repair; Air Filtration; Air System Balancing and Troubleshooting; Indoor Air Quality and Sick Building Syndrome | 6 | √ |
| 439 | System Troubleshooting<br>Preparation for Troubleshooting; Troubleshooting Procedures; Troubleshooting Electric Controls; Troubleshooting Pneumatic Controls; Troubleshooting The Refrigerant Circuit | 5 | √ |
| 440 | Absorption Chillers<br>Principles of Absorption Chiller Systems; Water/Lithium Bromide Absorption Systems; Lithium Bromide Absorption - Controls and Maintenance; Ammonia/Water Absorption Systems; Evolving Absorption Systems; Absorption Systems vs. Mechanical Compression Systems | 6 | √ |
| 441 | Heat Pumps<br>Introduction to Heat Pumps; Heat Pump Systems; Balance Points and Cost of Operation; Heat Pump Components; Heat Pump Controls; Heat Pump Installation; Heat Pump Checkout and Startup | 7 | √ |
| AMMONIA REFRIGERATION (Series 460) | | | |
| 461 | Ammonia Refrigeration Basics<br>Ammonia Characteristics; Single-Stage Ammonia Systems; Two-Stage Ammonia Systems; Suction Accumulators and Intercoolers; Liquid Overfeed Systems | 5 | √ |
| 462 | Positive-Displacement Compressors<br>Reciprocating Compressors; Sliding-Vane Rotary Booster Compressors; Oil-Flooded Screw Compressors; Screw Compressor Units; Ammonia Systems Lubrication Oil Management | 5 | √ |
| 463 | Evaporators, Condensers, and Controls<br>Liquid Ammonia Evaporator Supply Methods; Evaporators; Air Unit Defrost Systems; Evaporative Condensers; Control Valves and Switches | 5 | √ |
| 464 | Purging, Piping and Safety<br>Purging Air and Noncondensables; Ammonia System Piping; Ammonia System Safety Codes and Guidelines; OSHA Process Safety Management; EPA Regulations and Ammonia Safety | 5 | √ |
| BUILDINGS AND GROUNDS (Series 360) | | | |
| 367 | Plumbing Systems Maintenance<br>Introduction to Plumbing; Plumbing Fixtures; Sanitary Drainage Systems; Vent Systems; Storm Water Drainage; Potable Water Distribution; Hot Water Distribution; Valves; Piping Assembly Procedures; Maintaining Plumbing Systems | 10 | √ |
| ELECTRONICS (Series 250) | | | |
| 251 | Semiconductors<br>Introduction to Semiconductors; Environmental Conditions; Printed Circuit Boards; Transistors and Integrated Circuits; Packages and Performance Analysis | 5 | √ |
| 252 | Power Supplies<br>Power Supplies and Power Conditioners; Cells and Batteries; Rectifiers; Filters; Voltage Regulators; Troubleshooting Power Supplies | 6 | √ |
| 253 | Amplifiers<br>Introduction to Amplifiers; Single-Stage Amplifiers; Amplifier Performance and Multistage Amplifiers; Op Amps; Troubleshooting Amplifiers | 5 | √ |

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|---|---|---|---|
| 254 | Oscillators<br>Introduction to Oscillators; Flip-Flops; Logic Clocks; Filters and Waveforms; Troubleshooting Oscillators | 5 | √ |
| 291 | Digital Logic Systems<br>Digital Logic Fundamentals; Logic Building Blocks; Medium- and Large-Scale IC's; Functional Logic Systems; Troubleshooting Logic Systems | 5 | √ |
| ENERGY CONSERVATION (Series 370) | | | |
| 379 | Mechanical Energy Conservation<br>Reducing Friction; Cutting Transmission Losses; Pumps, Fans, and Compressors; Elevators and Conveyor Systems; Improving Vehicle Efficiency | 5 | √ |
| 380 | Electrical Energy Conservation<br>Surveying Electrical Consumption; Using Load Management Techniques; Improving Electrical Equipment Efficiency; Conducting a Lighting Survey; Evaluating Lamps and Fixtures | 5 | √ |
| FOUNDATIONS OF TECHNOLOGY (Series 390) | | | |
| 391 | Force and Motion<br>Scalers and Vectors; Motion Along a Straight Line; Acceleration; How to Describe Force; Force and Acceleration; Equilibrium; Rotational and Circular Motion; Simple Harmonic Motion | 8 | √ |
| MACHINE SHOP PRACTICES (Series 320) | | | |
| 315 | Machine Shop Practice<br>Principles of Machining; Layout Work and Shop Safety; Setup Tools; Setup Measurement; How to Grind Single-Point Tools; How to Grind Multi-point Tools | 6 | √ |
| 316 | Machine Shop Turning Operations<br>Latches and Attachments; Basic Lathe Operations; Drilling and Boring; Reaming; Threads and Threading | 5 | √ |
| 317 | Machine Shop Shaping Operations<br>Milling Operations; Shaping and Planning; Grinding Operations; Gear Cutting; Power Sawing | 5 | √ |
| 323 | Machine Shop Job Analysis<br>Machining Cylindrical Shapes; Drilling, Reaming, and Honing; Machining Flat Surfaces; Determining Tolerances and Finishes; Variables Affecting Job Efficiency | 5 | √ |
| 324 | Lathe-Turning Work Between Centers<br>Lathe Setup and Workplace Preparation; Rough and Finish Turning; Shouldering, Knurling, and Notching; Cutting External Threads; Turning Tapers Between Centers | 5 | √ |
| 325 | Lathe-Machining Work in a Chuck<br>Lathe Setup and Workplace Preparation; Rough Turning and Finish Turning; Boring and Counterboring; Cutting Internal Threads and Boring Tapers; Holding Irregular and Oversize Workpieces | 5 | √ |
| 326 | Basic Milling Procedures<br>Using the Horizontal Milling Machine; Slab Milling Procedures; Milling Slots and Angles; Straddle, Side, and Face Milling; Milling Keyseats, Squares, and Flats | 5 | √ |
| 327 | Indexed Milling Procedures<br>Using the Dividing Head; Dividing Head Setup; Milling Spur Gears; Helical Milling; Milling Cams | 5 | √ |
| 328 | Multiple-Machine Procedures<br>Power Sawing; Drilling Operations; Operating a Horizontal Shaper; Grinding Operations; Boring Mill Operations | 5 | √ |

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|---|---|---|---|
| **MATERIAL HANDLING SYSTEMS (Series 330)** | | | |
| 331 | Bulk-Handling Conveyors<br>Conveyor Components; Bulk-Conveyor Belting; Belt Cleaners and Idlers; Feed and Discharge Devices; Safety and Troubleshooting | 5 | √ |
| **MECHANICAL MAINTENANCE APPLICATIONS (Series 340)** | | | |
| 341 | Mechanical Drive Maintenance<br>Chain Drives; Belt Drives; Open Gear Devices; Enclosed Gear Drives; Drive Couplings | 5 | √ |
| 342 | Mechanical and Fluid Drive Systems<br>Mechanical Brakes and Clutches; Electric Brakes and Clutches; Adjustable-Speed Drives; Fluid Drives; Complete Drive Systems | 5 | √ |
| 343 | Bearings and Shaft Seal Maintenance<br>Plain Bearings; Installing Antifriction Bearings; Removing and Replacing Antifriction Bearings; Mounted Antifriction Bearings; Linear Motion Bearings and Shafts | 5 | √ |
| 344 | Pump Installation and Maintenance<br>Basic Pumping Concepts; Maintaining Packings and Seals; Maintaining Centrifugal Pumps; Overhauling Centrifugal Pumps; Maintaining Rotary Pumps | 5 | √ |
| 345 | Maintenance Pipefitting<br>Piping Dimensions and Terminology; Threaded Piping Systems; Welded Piping Systems; Plastic Piping Systems; Pipefitting Accessories | 5 | √ |
| 346 | Tubing and Hose System Maintenance<br>Tubing Fundamentals; Installing Tubing; Hydraulic Tubing Systems; Hose Systems; Gaskets, Sealants, and Adhesives | 5 | √ |
| 347 | Valve Maintenance and Piping System Protection<br>Valve Maintenance; Special Valves; Actuators and Accessories; Valve Selection; Piping System Protection | 5 | √ |
| **PROCESS CONTROL INSTRUMENTATION (Series 270)** | | | |
| 271 | Introduction to Process Control<br>The Nature of Process Control; Elements of Process Control; Process Control Signals; Process Control Diagrams; Using Symbols and Diagrams in Process Control; Process Control Loop Operations | 6 | √ |
| 272 | Foundations of Measurement Instrumentation<br>Introduction to Process Measurement; Principles of Transducer Operation; Basic Process Measurement Systems; Systems Standards and Instrument Calibration; Maintaining System Quality | 5 | √ |
| 273 | Pressure Measurement<br>Principles of Pressure in Liquids and Gases; Pressure Sensors; Pressure Transducers; Low-Pressure Measurement; Installation and Service | 5 | √ |
| 274 | Force, Weight, Motion Measurement<br>Force, Stress, and Strain; Weight and Mass Measurement; Weighing Materials in Motion; Position Measurements; Acceleration, Vibration, and Shock | 5 | √ |
| 275 | Flow Measurement<br>Properties of Fluid Flow; Primary Measuring Devices; Secondary Measuring Devices; Variable-Area Instruments; Open-Channel Flow Devices; Positive-Displacement Meters; Turbine and Magnetic Flowmeters; Specialized Flowmeters; Metering the Flow of Solid Particles; Installation and Maintenance of Flow Instruments | 10 | √ |
| 276 | Level Measurement<br>Principles of Level Measurement; Electrical Instruments; Pressure Head Instruments; Solid Level Measurement; Other Level Measurement Instruments | 5 | √ |

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|---|---|---|---|
| 277 | Temperature Measurement<br>Temperature Measurement Principles and Indicators; Bi-metallic and Fluid-Filled Temperature Instruments; Electrical Instruments; Pyrometry; Temperature Instrument Maintenance and Calibration | 5 | √ |
| 278 | Analytical Instrumentation<br>Measuring Conductivity; Measuring pH and ORP; Optical Measurements; Measuring Products of Combustion; Chromatography | 5 | √ |
| 279 | Final Control Elements<br>Final Control Elements in Process Loops; Electrical Actuators; Pneumatic and Hydraulic Actuators; Control Valves; Final Control Element Applications | 5 | √ |
| 280 | Safety, Calibration, and Testing Procedures<br>Safety Standards and Practices; Servicing Fundamentals; Electrical and Electronic Stations; Pneumatic and Hydraulic Stations; Troubleshooting | 5 | √ |
| PROCESS CONTROL SYSTEMS (Series 280) | | | |
| 281 | Working with Controllers<br>Controller Operation; Controller Modes and Tuning; Special Controller Applications and Options; Maintaining Controller Systems | 5 | √ |
| 282 | How Control Loops Operate<br>Fundamentals of Control Loops; Control Loop Characteristics; Advanced Control Methods; Loop Dynamics; Loop Protection | 5 | √ |
| 283 | Data Transmission<br>Process Data Transmission Methods; Electrical Data Transmission; Digital Data Transmission; Optical Data Transmission; Data Transmission Interference | 5 | √ |
| 284 | Computers in Process Control<br>History and Overview; Small Computers in Process Control; DCS Architecture; DCS Configuration and Operation; System and Application Integration | 5 | √ |
| PROGRAMMABLE LOGIC CONTROLLERS (Series 298) | | | |
| 298 | Programmable Logic Controllers<br>Introduction to Programmable Logic Controllers; Number Systems and Logic; Programming the System; Input/Output Devices and Modules; Developing a PLC System; Maintenance and Troubleshooting; System Expansion and Data Networks | 7 | √ |
| RIGGING and INSTALLATION (Series 318) | | | |
| 318 | Industrial Rigging Principles and Practices<br>Introduction to Industrial Rigging; Wire Rope and Wire Rope Slings; Chain and Metal-Mesh Slings; Fiber Rope and Webbing Slings; Industrial Hoists and Cranes; Operating Practices; Scaffolds and Ladders | 7 | √ |
| ROBOTICS (Series 500) | | | |
| 501 | Introduction to Robotics<br>Robotics in Automated Manufacturing; The Basic Robot System; Robot Classification I; Robot Classification II; Work-Cell Sensors; End-of-Arm Tooling; Robot Teaching and Programming | 7 | √ |
| WELDING (Series 420) | | | |
| 416 | Blueprint Reading for Welders<br>Shop Math and Measurement; Introduction to Blueprints; Lines and Views on Blueprints; Welds and Weld Joints; Welding Symbols; Advanced Shop Math and Measurement | 6 | √ |

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|---|---|---|---|
| 417 | Welding Principles<br>Fundamentals of Welding; Welding Safety; Oxyfuel Welding Equipment; Arc Welding Equipment; Welding Techniques; Avoiding Welding Faults; Welding Symbols | 6 | √ |
| 418 | Oxyfuel Operations<br>Welding Ferrous Metals; Welding Nonferrous Metals; Oxygen Cutting; Brazing and Soldering; Surfacing Techniques | 5 | √ |
| 419 | Arc Welding Operations<br>Shielded Meta -Arc Welding; Selecting Electrodes for SMAW; Gas Metal Arc Welding; Gas Tungsten Arc Welding; Other Welding Processes; Pre-heating and Post-heating; Welding Ferrous Metals; Welding Nonferrous Metals; Pipe Welding; Hard Facing and Rebuilding | 10 | √ |
| MAINTENANCE MANAGEMENT (Series 900) | | | |
| 901 | Maintenance Organization<br>Types of Maintenance Organizations; Maintenance Planning and Operations; Work Order Systems; Using Information Sources; Controlling Backlog through Planning; Applying Work Standards; Managing Maintenance by Computer | 7 | √* |
| 902 | Implementing Preventive Maintenance<br>The Need for PM; Setting Up a PM Program; Scheduling PM; Controlling Work; Quality Control | 5 | √* |
| 903 | Controlling Maintenance Resources<br>Measuring Workload; Controlling Labor; Controlling Parts and Materials; Managing Shop Operations; Controlling Costs through Budgeting | 5 | √* |
| 904 | Improving Performance in Maintenance<br>Evaluating Performances; Increasing Productivity; Effects of Training; Managing Time; Stimulating Improvement | 5 | √* |
| 905 | Effective Communication for Supervisors<br>Communication Objectives; Verbal and Nonverbal Communication; How to Listen; Communication Maintenance; Planning Your Writing; The Mechanics of Writing; Business Writing | 7 | √* |
| 906 | Employee Relations<br>Defining the Supervisor's Job; Supervising Hourly Personnel; Becoming a Successful Leader; The Supervisor's Role in Employee Relations; Responding to Interpersonal Problems; Taking Corrective Action; The Grievance Procedure; Labor Law Basics | 8 | √* |
| 907 | Managing a Training Program<br>Analyzing Your Training Needs; The Supervisor as Trainer; Using Training Media; Teaching and Evaluating Success | 4 | √* |
| KWIKREF | | | |
| | Industrial Hydraulics<br>Introduction to Hydraulics, Hydraulic Pumps, Hydraulic Actuators, Hydraulic Valves, Hydraulic Modular Valves, Hydraulic Accumulators, Hydraulic Fluid Conditioning, Hydraulic Conductors and Connectors, Sensors and Switches for Hydraulics, Hydraulic Proportional Control Valves | 10 | √ |
| | Mobile Hydraulics<br>Introduction to Hydraulics, Hydraulic Pumps, Hydraulic Actuators, Hydraulic Valves, Hydraulic Modular Valves, Hydraulic Accumulators, Hydraulic Fluid Conditioning, Hydraulic Conductors and Connectors, Sensors and Switches for Hydraulics, Hydrostatic Transmissions, Hydraulic Proportional Control Valves | 11 | √ |
| | Pneumatics<br>Pneumatic Fundamentals, Pneumatic Compressors, Pneumatics Air Preparation, Air Conductors and Distribution, Pneumatic Actuators, Pneumatic Control Valves, Vacuum Control Fundamentals, Pneumatic Symbols and Circuits | 8 | √ |

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|---|---|---|---|
| | Mechanical<br>Fundamentals of Mechanics, Mechanical Actuators, Mechanical Clutches, Mechanical Brakes, Bearings, Gears, Belt and Chain Drives, Mechanical Couplings | 8 | √ |
| | Introduction to Electricity<br>Electrical Fundamentals, Introduction to Electrical Circuits | 2 | √ |
| | Mobile Electricity<br>Electrical Fundamentals, Introduction to Electrical Circuits, Starting and Charging Circuits | 3 | √ |
| | PLC<br>Introduction to PLC, PLC Hardware, PLC Numbering Systems, How a PLC is Structured, How to Program a PLC Devices Connected to a PLC How to Use Timers, How to Use Counters | 8 | √ |
| | AC-DC Drives<br>Fundamentals of AC-DC Drives, DC Motors, AC Motors, DC Drives, AC Drives, AC-DC Braking Methods, Brushless DC Motors, Brushless Servo Drives, | 8 | √ |
| | Multimeter Basics<br>Using Electrical Testers, Starting and Charging Circuits | 2 | √ |

√* = Under development to be released in 2013