

Educational Programs

INDUSTRIAL SKILLS TRAINING



"Training - It ain't what it used to be!"

National Association of Power Engineers, Inc.
1 Springfield Street
Chicopee, MA 01013
(413) 592-6273

Introduction

As an Association dedicated to education, it is important that we continue to provide the National Association of Power Engineers, Inc. (N.A.P.E.) members with new and improving means of obtaining education. The National Association of Power Engineers is proud to announce a new partnership with ITC Learning. ITC Learning is the world leader in Industrial Skills Training, celebrating over 30 years of service to 6,000 organizations and more than one million users. With the largest libraries of courseware for mechanical, electrical and instrumentation maintenance training, ITC Learning now provides N.A.P.E. members with new educational courses and on-line training.

All ITC courseware has been designed to deliver real-time solutions to real-time maintenance and operations situations in a real-time environment. ITC courseware helps reduce downtime and contributes to the bottom line.

Courses are available in:

- DVD / Videotape Series
- CD-Rom Series
- On-line Series

Prices and information pertaining to each course can be obtained by contacting the National Office at (413) 592-6273 or by emailing: napenatl@verizon.net. Be sure to continue checking the N.A.P.E. website, www.powerengineers.com, for these new educational courses are coming to our website soon.

This new opportunity will benefit the current members of N.A.P.E. and encourage new members to take advantage of the many services N.A.P.E. has to offer. Those of us at the National Office are excited to work in conjunction with ITC Learning to offer our members these new courses.

Note: Front cover picture courtesy of the Public Service Enterprise Group, Inc.

INDUSTRIAL SKILLS TRAINING

DVD / Videotape Series

MECHANICAL SERIES

Air Conditioning and Refrigeration

- Introduction to Air Conditioning and Refrigeration, 1001
- Vapor Compression Cycle Designs and Refrigerants, 1002
- Test and Maintenance Equipment, 1003
- System Operation Checks, 1004
- Pump Down, Evacuation, and Charging, 1005
- Mechanical Troubleshooting, 1006
- Electrical Controls and Circuits, 1007
- Electrical Troubleshooting, 1008

Equipment Operation

- Techniques and Practices for Equipment Operators, 2501
- Centrifugal Pumps, 2502
- Steam Turbines, 2503
- Valves, 2504
- Reciprocating Air Compressors, 2505
- Heat Exchangers, 2506
- Positive Displacement Pumps, 2507
- Boilers, 2508
- Water Chemistry and Chemical Handling Practices, 2509
- Electrical Equipment, 2510
- Demineralizers, 2511
- Vacuum Pumps, Air Ejectors, Strainers, and Traps, 2512
- Lubrication for Equipment Operators, 2513

Hydraulic Systems

- Introduction to Hydraulic Systems, 3501
- Pressure Controls, 3502
- Directional Flow Controls, 3503
- Fluids, Filters, and Reservoirs, 3504
- Hydraulic Pumps, Pumping Principles, and Accumulators, 3505
- Variable Volume Hydraulic Pumps, 3506
- Actuators, 3507
- Hydraulic System Troubleshooting, 3508
- Electrohydraulic Servo Systems, 3509

Maintenance Management

- The Maintenance Organization, 4001
- Maintenance Systems and Documentation, 4002
- Maintenance Safety and Efficiency, 4003
- Planning, 4004
- Scheduling, 4005
- Preventive and Predictive Maintenance, 4006
- Parts & Materials, 4007
- Work Execution, 4008

- Evaluating the Maintenance Program, 4009
- Computerized Maintenance Systems, 4010

Mechanical Drive Maintenance

- Gear Boxes (2 tape set), 45221 and 45222
- Mechanical Drives, Couplings, & Alignment (2 tape set), 45061 - 45062*
- Advanced Alignment, 4519*
- Vibration Analysis, 4517*

Mechanical Maintenance Fundamentals

- General Shop Practices (3 tape set), 45031 - 45033*
- Hand Tools (2 tape set), 45011 - 45012 *
- Measuring Instruments, 4502*
- Mechanical Print Reading, 4504
- Bolting and Fastening, 4526
- Rigging and Lifting (4 tape set), 45051 - 45054*
- Bearings and Lubrication (3 tape set), 45081 - 45083*

Other Mechanical Maintenance Subjects

- Boilers and Boiler Equipment (2 tape set), 45141 - 45142*
- Auxiliary Steam Turbines (3 tape set), 45241 - 45243
- Coal and Ash Handling Equipment (2 tape set), 45151 - 45152*
- Diesel Engines (3 tape set), 45161 - 45163*
- Hydraulic Equipment (2 tape set), 45201 - 45202*

Mechanical Troubleshooting

- Principles of Mechanical Troubleshooting, 6501
- Troubleshooting Centrifugal Pumps, 6502
- Troubleshooting Positive Displacement Pumps, 6503
- Troubleshooting Reciprocating Air Compressors, 6504

Piping and Valve Maintenance

- Piping (4 tape set), 45111 - 45114*
- Advanced Pipefitting (4 tape set), 45211-45214*
- Valves (4 tape set), 45121 - 45124*
- Motorized Valve Actuators (2 tape set), 45231 - 45232
- Relief Valves (2 tape set), 45181 - 45182*

Pump and Compressor Maintenance

- Centrifugal Pumps (4 tape set), 45091 - 45094*
- Specialized Centrifugal Pumps, 4510*
- Air Compressors and Blowers (3 tape set), 45131- 45133*

- Centrifugal Air Compressors (3 tape set), 45251 - 45253
- Packing and Seals (2 tape set), 45071 - 45072*

Respiratory Protection

- Air-Purifying Respirators, 5301
- Atmosphere-Supplying Respirators, 5302

Rotating Equipment Predictive Maintenance & Alignment

- Principles and Practices of Predictive Maintenance, 5401
- Vibration Analysis, 5402
- Lubricant and Trend Analysis, 5403
- Techniques for Extending Bearing Life, 5404
- Principles of Reverse Double Dial Alignment, 5405
- Reverse Double Dial Alignment Procedure, 5406
- Computerized and Laser Alignment, 5407

Statistical Process Control

- Introduction to Statistical Process Control, 5501
- Introduction to Control Charts, 5502
- Control Charts for Variables, 5503
- Control Charts for Attributes, 5504
- Advanced Control Charts, 5505
- Machine and Process Capability Studies, 5506
- Problem Solving Techniques, 5507

Welding

- Principles and Metallurgy, 7001
- Joint Design and Symbols, 7002
- General Techniques and Safety Practices, 7003
- Oxygen-Fuel Gas Cutting, 7004
- Brazing and Braze Welding, 7005
- Shielded Metal-Arc Welding Principles, 7006
- Shielded Metal-Arc Structural and Pipe Welding 7007
- Principles of TIG, 7008
- TIG Structural and Pipe Welding, 7009
- Principles and Techniques of MIG, 7010
- Weld Defects: Causes and Corrections, 7011
- Cutting: Plasma-Arc and Air Carbon-Arc, 7012

ELECTRICAL SERIES

Electric Motor and Control Maintenance

- Motors (5 tape set), 20071 - 20075*
- Control Equipment (6 tape set), 20061 - 20066*

Electrical Maintenance Fundamentals

- AC/DC Theory (4 tape set), 20011 - 20014*

- Electrical Print Reading (2 tape set), 20031 - 20032*
- Electrical Connections (4 tape set), 20051 - 20054*
- Solid-State Devices (4 tape set), 20121 - 20124*

Electrical Safety

- Electrical Safety, 24001

Electrical Switchgear Maintenance

- Switchgear (2 tape set), 20091 - 20092*
- Protective Relays, 2008*
- Transformers, 2011*
- Batteries, 2010*

Programmable Controllers

- Controllers, 5001
- Central Processing Unit, 5002
- Discrete I/O Modules, 5003
- Analog and Special I/O Modules, 5004
- Programming Devices and Peripheral Equipment, 5005
- Principles of Ladder Diagrams, 5006
- Interpreting Ladder Diagrams, 5007
- Numbering Systems, Numbering Codes, and Logic Concepts, 5008
- Principles of Ladder Logic Programming, 5009
- Programming: Timers and Counters, 5010
- Comparison and Arithmetic Functions, 5011
- Programming: Logical Operations and Data Manipulation, 5012
- Programming: Analog and PID, 5013
- Communication Fundamentals, 5014
- Networking, 5015
- Developing a Program, 5016
- Program Documentation, 5017
- Sizing and Selection, 5018
- Installation Considerations, 5019
- Troubleshooting Techniques, 5020
- Troubleshooting PC Malfunctions, 5021
- Troubleshooting Field Device Malfunctions, 5022

BASIC SKILLS SERIES

Training the Trainer

- The Elements of Effective Training, 6001
- Planning for Effective Training, 6002
- Developing and Writing Training Objectives, 6003
- Learning: How it Occurs, 6004
- Instructing to Facilitate Learning, 6005
- Methods for Teaching Skills, 6006
- Methods for Teaching Information, 6007
- Principles of Visual Training, 6008
- Using Visual Aids Effectively, 6009
- Measuring Instructional Effectiveness, 6010
- Developing and Using Lesson Plans, 6011
- On-the-Job Training, 6012

- Teaching Your First Class, 6013
- Administering the Training Program, 6014

* Titles also available in Spanish

Additional Information

The DVD/Videotape Series is \$119.00 per DVD and \$99.00 per Videotape. This price does not include shipping or handling. DVD/Videotapes purchased are non-refundable if DVD/Videotapes seal is broken.

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INDUSTRIAL SKILLS TRAINING

CD-ROM Series

MECHANICAL SERIES

Air Compressor Repair

- Principles and Troubleshooting, A9001
- Disassembly, Inspection, and Repair, A9002

Bearings — Reducing Failure Rate

- Failure Analysis, A8101
- Maintaining Bearings, A8102

Centrifugal Pump Repair

- Principles and Troubleshooting, A8901
- Disassembly, Inspection, and Reassembly, A8902

Hand Tools and Measuring Instruments

- Hand Tools, A8601
- Precision Measuring Instruments, A8602

Industrial Hydraulic Power

- Hydraulic System Operation, A9501
- Hydraulic Pumps, Pumping Principles, and Accumulators, A9502
- Pressure Controls, A9503
- Directional and Flow Controls, A9504
- Hydraulic Actuators, A9505

Industrial Lubrication

- Fundamentals of Lubrication, A8401
- Lubrication Maintenance, A8402

Mechanical Seals

- Mechanical Seals, A9801

Pipefitting

- Pipefitting Materials and Layout, A8801
- Tubing and Threaded Pipe, A8802
- Preparing Piping for Installation, A8803
- Lagging and Insulation, A8804

Pneumatic Power

- Pneumatic Air Treatment, A7401

Rigging and Lifting

- Hand Operated Equipment, A8701
- Forklifts and Cranes, A8702
- Ladders and Scaffolding, A8703

Rotating Equipment Predictive Maintenance and Alignment

- Principles and Practices of Predictive Maintenance, A8301
- Vibration Analysis, A8302
- Lubricant and Trend Analysis, A8303
- Techniques for Extending Bearing Life, A8304

- Principles of Reverse Double Dial Alignment, A8305
- Reverse Double Dial Alignment Procedure, A8306
- Computerized and Laser Alignment, A8307

Statistical Process Control

- Introduction to Statistical Process Control, A8501
- Introduction to Control Charts, A8502
- Control Charts for Variables, A8503
- Control Charts for Attributes, A8504
- Advanced Control Charts, A8505
- Machine and Process Capability Studies, A8506
- Problem Solving Techniques, A8507

Troubleshooting Skills

- Developing Logical Thinking, A7501

Valve Repair

- Gate Valve Repair, A9101
- Globe and Control Valve Repair, A9102

ELECTRICAL SERIES

AC and DC Motors

- AC Motor Theory, A8011
- AC Motor Maintenance, A8012
- DC Motor Theory, A8013
- DC Motor Maintenance, A8014

Conduit Installation

- Conduit Bending and Installation, A8018

Digital Electronic Theory

- Binary Logic Circuits, A9401
- Codes, Encoders, Decoders, and Flip-Flops, A9402
- Counters and Shift Registers, A9403
- Data Transmission, Conversion, and Storage, A9404

Electrical Control Equipment

- Fuses and Circuit Breakers, A8008
- Limit Switches, A8007
- Switches, Coils, and Overloads, A8006
- Magnetic Starters, A8009
- Troubleshooting Electrical Control Circuits, A8010
- Inverters — Operation and Maintenance, A8019

Electrical Safety

- Electrical Safety Awareness, A9701
- Electrical Personal Protective Equipment, A9702

Electrical Theory for Troubleshooters

- Electrical Theory: Ohm's Law, A8201
- Electrical Theory: AC Characteristics, A8202
- Electrical Theory: 3-Phase AC Circuits, A8203
- Solid-State Theory: Semiconductors and Diodes, A8204
- Solid-State Theory: Rectifiers and Filters, A8205
- Solid-State Theory: Power Devices, A8206
- Introduction to Digital Devices, A8207

Electrical/Electronic Test Equipment

- Multimeters, A8002
- Oscilloscopes, A8001
- Ammeters, Meggers, and Wheatstone Bridge, A8003

Print Reading

- Electrical Schematics, A8005
- Electrical Diagrams, A8004

Programmable Controllers

- Principles of Operation, A9601
- Interpreting Ladder Logic, A9602
- Programmable Controllers for Analog Control, APCA A

INSTRUMENTATION SERIES

Analyzers

- Principles of Process Analysis, AAS01
- Spectroscopic Analyzers, AAS02
- Gas Chromatographs, AAS03
- Air and Water Analysis, AAS04
- Process Sampling Systems, AAS05

Boiler Control

- Boiler Systems, ABC01
- Boiler Controls, ABC02
- Troubleshooting Boiler Controls, ABC03

Control Valves

- Body Types and Trim, ACV01
- Actuators and Positioners, ACV02
- Body and Trim Maintenance, ACV03
- Actuator and Positioner Maintenance, ACV04

Controller Tuning

- Controller Tuning, ACTAV

Digital Instrumentation

- Smart Transmitters, ADI01
- Single Loop Digital Controllers, ADI02

Distributed Control

- Distributed Control Fundamentals, ADC01
- Maintaining Distributed Control Systems, ADC02

Electronic Maintenance

- Pressure and Temperature Transmitters, AEM01
- Flow Transmitters, AEM02
- Level and Weight Transmitters, AEM03
- Transducers, Annunciators, and Recorders, AEM04
- Electronic Controllers, AEM05

Fundamentals of Industrial Measurement

- Pressure Measurement, AFM01
- Flow Measurement, AFM03
- Temperature Measurement, AFM04
- Level Measurement, AFM02

Industrial Process Control

- Single Loop Control, AIP01
- Multiple Loop Control, AIP02

Instrument Calibration

- Calibration Principles, AIC01
- Calibrating Pressure and Differential Pressure Instruments, AIC02
- Calibrating Temperature Instruments, AIC03
- Calibrating Flow Instruments, AIC04
- Calibrating Level Instruments, AIC05

Instrumentation and Control Safety

- Personnel Safety, AIS01
- Working With Hazardous Materials, AIS02
- Instruments In Hazardous Environments, AIS03

Interpreting Process Control Diagrams

- Interpreting Process Control Diagrams, AIPCD

Pneumatic Maintenance

- Pneumatic Principles, APM01
- Sensors and Transmitters, APM02
- Controllers and Recorders, APM03

Process Operations

- Heating and Cooling Systems, APO01
- Distillation Columns, APO02
- Batch Process Systems, APO03

Test Instruments and Devices

- Pneumatic and Hydraulic Test Devices, ATI01
- Electronic Test Devices, ATI02
- Temperature and Frequency Test Devices, ATI03
- Analog and Digital Oscilloscopes, ATI04

Troubleshooting

- Troubleshooting Single Loop Control Systems, ATS01
- Troubleshooting Multi-Loop Control Systems, ATS02
- Troubleshooting Distributed Control Systems, ATS03

BASIC SKILLS SERIES

Applied Mathematics

- Whole Number Operations, A4301
- Decimals, A4302
- Fractions, A4303
- Percent, Ratio and Proportion, A4304
- Positive and Negative Numbers, Powers and Roots, A4305
- Introduction to Algebra, A4306
- Measurement, A4307
- Introduction to Geometry, A4308
- Introduction to Statistics, A4309

Reading and Writing Enhancement

- Procedures and Instructions, A7201
- Forms and Applications, A7202
- Memos and Logs, A7203
- Workplace Information Documents, A7204
- Reference Materials, A7205
- Technical Manuals, A7206

* Titles also available in Spanish

Additional Information

The CD-ROM Series is \$350.00 per CD-ROM. This price does not include shipping or handling. CD-ROM's purchased are non-refundable if CD-ROM's seal is broken.

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INDUSTRIAL SKILLS TRAINING

On-Line Training Series

ELECTRICAL SKILLS

Ammeters, Meggers and Wheatstone Bridge

- Introduction to Megohmmeters
- Using the Megohmmeter
- Wheatstone Bridge
- Using a Wheatstone Bridge
- Clamp-on Ammeters

AC/DC Motor Maintenance

- Introduction to AC Motor Maintenance
- Records, Tools and Instruments
- Preventive AC Motor Maintenance
- Measurement in Preventive AC Motor Maintenance
- Preparing for Periodic AC Motor Maintenance
- Motor Disassembly and Reassembly in Periodic AC Motor Maintenance
- Corrective Maintenance for AC Motors
- Introduction to DC Motor Maintenance
- Commutator Inspection
- Commutator Wear
- Commutator Maintenance
- Brush Maintenance

AC/DC Motor Theory

- Introduction to AC Components and Motors
- Advanced AC Motor Principles
- Three-Phase Motors - Part 1
- Three-Phase Motors - Part 2
- Single-Phase Motors
- Introduction to DC Motors
- Introduction to DC Motor Theory
- Armature Reaction, Compensation and Induced Voltage
- Series, Shunt and Compound DC Motors
- Permanent Magnet, Universal and Brushless DC Motors
- DC Motor Controls

Conduit Installation

- Conduit System Materials
- Conduit Bending
- Conduit Layout and Installation

Electrical Print Reading

- Introduction to Electrical Schematics
- Electrical Schematic Symbols - Input Devices
- Electrical Schematic Symbols - Logic and Output Devices
- Interpreting Electrical Schematics
- Introduction to Electrical Diagrams
- Building Electrical Diagrams

- Single-Line Electrical Diagrams
- Wiring Diagrams

Electrical Safety

- Working Safely with Electricity
- Electrical Circuits and Supplies
- Electrical Shock
- Electrical Personal Protective Equipment
- Protective Gloves and Sleeves
- Eye and Face Protection
- Protective Helmets
- General Protective Equipment

Electrical Theory for Troubleshooters

- Introduction to Electricity
- Basic Electrical Properties
- Series Circuits
- Parallel Circuits
- Alternating Current
- Electromagnetism
- Inductance
- Capacitance
- Three-Phase AC Circuits
- Wye and Delta Connections
- Introduction to Transformers
- Transformers

Multimeters

- Digital Multimeters
- Analog Multimeters
- Multimeter Selection and Inspection
- Using Multimeters
- Advanced Features of Digital Multimeters

Oscilloscopes

- Introduction to Oscilloscopes
- The Display
- Vertical System Controls
- Horizontal System Controls
- The Trigger System
- Probes
- Setup
- Waveforms
- Measurement

MECHANICAL SKILLS

Centrifugal Pump Repair

- Troubleshooting Excessive Leakage
- Troubleshooting Excessive Temperature
- Troubleshooting Loss of Capacity
- Disassembly
- Inspection
- Reassembly

Hand Tools

- Clamps, Vises and Pliers
- Screwdrivers
- Wrenches
- Hammers, Mallets and Sledges

Industrial Hydraulic Power

- Introduction to Hydraulic Systems
- Hydraulic Schematics
- Hydraulic Fluids
- Hydraulic Pump Applications
- Positive Displacement Pumps
- Hydraulic Accumulators
- Pressure Control Principles
- Pressure Control Operation
- Pressure Control Valve Applications
- Directional Control Principles
- Flow Control Valves
- Actuator Cylinders
- Hydraulic Motors

Industrial Lubrication

- Introduction to Industrial Lubrication
- Lubricants
- Lubrication Systems
- Filters and Lubrication Maintenance

Mechanical Print Reading

- Introduction to Mechanical Print Reading
- Lines Used in Mechanical Print Reading
- Dimensions in Mechanical Print Reading
- Orthographic Projection

Mechanical Seals

- Introduction to Mechanical Seals
- Mechanical Seal Designs
- Failure Analysis
- Mechanical Seal Maintenance

Precision Measuring Instruments

- Dial Calipers
- Micrometers
- Telescoping and Thickness Gauges
- Dial Indicators

Limit Switches

- Overview
- Lever-Actuated
- Solid State
- Torque and Geared

GENERAL SKILLS

Office Computer Data Security

- Office Computer Data Security

Troubleshooting Skills: Developing Logical Thinking

- Introduction to Troubleshooting
- Information Gathering
- Troubleshooting
- Improving Skills

Additional Information

The On-Line Training Series is \$9.00 per lesson. Portal access only.

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Features and Benefits

High Definition Visuals - Animated graphics, still graphics and detailed equipment photographs.

Browser-Based - Intranet, Internet, or CD-ROM delivery. Lessons are in HTML format with: Windows Media Audio (.wma) and Graphics are in JPEG (.jpg) or GIF (.gif) format. JAVA and Cookies must be enabled.

Self Contained - Needs no plug-in applications.

Full Audio & Text Integration - Simultaneous audio and text scripting, audio on/off control and integrated sound effects.

Glossary - Alphabetical listing of all technical terminology.

Help - Extensive functional help includes: How to use the lesson, system requirements and objectives.

Posttest - 10 question posttest for each lesson, random question sequence, variable questioning format, in-depth scoring capability and score tracking through any AICC or SCORM compliant LMS.

Practice Exercises - Calculations, questions and activities to enhance learning.

Topical Content - Short modular lessons, integrated audio, text and graphic presentation, SME content accuracy and embedded practices with audio and text remediation.

Learner-Led Control - Non-linear topic selection and course navigation.

Pretest - 10 question pretest for each lesson, random question sequence, variable questioning format, in-depth scoring capability and score tracking through any AICC or SCORM compliant LMS

AICC & SCORM Compliant - Track, launch, manage via any AICC or SCORM compliant LMS or LCMS.

System Requirements . . .

- Minimum: 486 66-MHz system, 16MB of RAM, color monitor.
- Recommended: Pentium 100-MHz system, 32MB of RAM, color monitor.
- 50-70MB free disk space on C drive.
- Windows 95 or greater.
- Recommended browsers: Netscape Navigator, version 6 or greater, or Internet Explorer, version 4.01 or greater.
- High speed Internet connection.
- CD-ROM drive, 2X or greater if running the lesson from a CD-ROM.
- Cookies and Java must be enabled.
- Windows Media Player, version 7 or greater.
- Disable popup blockers.

