Level One

MODULE 64102-02 - PIPELINE E&I SAFETY

- Transparencies
- Markers/chalk
- Blank acetate sheets
- Transparency pens
- Pencils and scratch paper
- Module Examinations
- Overhead projector and screen
- Whiteboard/chalkboard
- Appropriate personal protective equipment
- Copies of your company’s policy and procedures manual
- Copies of a company safety manual (one per group or student)
- Various types of safety equipment, including eye, face, and hand protection and respirators
- A variety of hot sticks and shotguns
- Various tags used in tagouts (new and/or used)
- Pictures demonstrating the use of color codes in a pipeline facility
- Several MSDSs
- Posterboard
- Colored markers

MODULE 64103-02 – TRADE MATH

- Transparencies
- Markers/chalk
- Blank acetate sheets
- Transparency pens
- Pencils and scratch paper
- Module Examinations
- Overhead projector and screen
- Whiteboard/chalkboard
- Appropriate personal protective equipment
- Copies of your company’s policy and procedures manual
- Copies of the National Electric Code®, latest edition
MODULE 64104-02 – ELECTRICAL THEORY

- Transparencies
- Markers/chalk
- Blank acetate sheets
- Transparency pens
- Pencils and scratch paper
- Module Examinations
- Performance Profile Sheets
- Overhead projector and screen
- Whiteboard/chalkboard
- Appropriate personal protective equipment
- Copies of your company’s policy and procedures manual
- Colored markers (optional)
- Posterboard or large sheets of paper (optional)
- Various resistors, both wire-wound and carbon (one per trainee)
MODULE 64105-02 – TOOLS OF THE TRADE

Transparencies
Markers/chalk
Blank acetate sheets
Transparency pens
Pencils/scratch paper
Module Examinations
Performance Profile Sheets
Overhead projector and screen
Whiteboard/chalkboard
Appropriate personal protective equipment
Copies of your company’s policy and procedures manual
A copy of National Electrical Code® (NEC) Articles 345, 346, and 347 or the entire NEC®
Benders
Scrap pieces of conduit or electrical metallic tubing
Hickeys (several sizes)
Lengths of conduit (various sizes)
Reamer
Threader
Cable cutters
Scrap pieces of cable
Conduit pistons
Straight wrenches
Stillson wrenches
Electrical wire
Fish tape
Portable band saw
Assorted blades for the band saw
Soldering iron
Tips for the soldering iron
Insulation-resistance tester
RF wattmeter
Frequency counter
Oscilloscope
Precision test gauge
Smart transmitter communicator
Clamp-on ammeter
Breakout box
Digital calibrator
Decade boxes
Signal generator
Typical relay tester
UV/IR guns
IR guns
Matches
Candles
Power quality analyzer
Assorted multimeters
Assorted cell phones, two-way radios, and pagers
TRANSCRIPTION

TRANSCRIPTION

TRANSCRIPTION

TRANSCRIPTION

TRANSCRIPTION

TRANSCRIPTION

TRANSCRIPTION

TRANSCRIPTION
MODULE 64107-02 - PIPELINE E&I DRAWINGS

Transparencies
Markers/chalk
Blank acetate sheets
Transparency pens
Pencils and scratch paper
Copies of the Quick Quiz
Module Examinations
Performance Profile Sheets
Overhead projector and screen
Whiteboard/chalkboard
Appropriate personal protective equipment
Copies of your company’s policy and procedures manual
Sample elevation views
Copies of drawings with complete title blocks, one copy per trainee
Copies of drawings with complete approval blocks, one copy per trainee
Sample drawings that use the lines listed in Figures 8 and 9, one copy per trainee
Rulers (English)
Architect’s scales, including triangular scale and flat scale, preferably one per trainee
Engineer’s scales, preferably one per trainee
Calculator (optional)
Copies of architectural drawings drawn to scale
Copies of electrical drawings that use a variety of abbreviations and symbols and contain a legend
Copies of a piping and instrumentation diagram that has lines, line numbers, match lines, and piping component symbols, one copy per trainee
Copies of sample instrument location drawings, instrument installation drawings, loop sheets, flow drawings, and instrument data sheets, one of each per trainee
Copies of a survey map, topographic map, profile, and strip map, one of each per trainee
Examples of drawings, some but not all of which are alignment sheets

MODULE 64108-02 - UNDERSTANDING THE NATIONAL ELECTRICAL CODE®

Transparencies
Markers/chalk
Blank acetate sheets
Transparency pens
Pencils and scratch paper
Module Examinations
Performance Profile Sheets
Overhead projector and screen
Whiteboard/chalkboard
Appropriate personal protective equipment
Copies of your company’s policy and procedures manual
A copy of the National Electrical Code®
MODULE 64109-02 - FASTENERS AND ANCHORS

Transparencies
Markers/chalk
Blank acetate sheets
Transparency pens
Pencils and scratch paper
Module Examinations
Performance Profile Sheets
Overhead projector and screen
Whiteboard/chalkboard
Appropriate personal protective equipment
Copies of your company’s policy and procedures manual
Copies of 49 CFR Part 192 (Gas) and/or 49 CFR Part 195 (Liquid)
Assorted threaded fasteners
Samples of the three series of threads
Assorted bolts and screws
Assorted machine screws
Assorted cap screws
Assorted set screws
Assorted concrete/masonry, deck, and drywall screws
Regular and semi-finished nuts
Finished nuts
Jam nut (with standard bolt and nut)
Standard nut (to be installed as jam nut)
Castellated and slotted nuts
A square key, a Pratt and Whitney key, a Gib head key, and a Woodruff key
Shaft keyseat (if separate from keys)
Assorted pin fasteners
Assorted yoke clamps
Assorted spacer clamps
A bundle lock application
A blind rivet application
Thread insert
Assorted washers
Assorted tie wraps
Assorted eye and J-bolts
Hammer-driven pins and studs (and equipment needed to install them)
Powder-actuated tool
Assorted one-step anchors
Equipment for installing each type of one-step anchor
Equipment for installing each type of bolt anchor
Assorted screw anchors
Assorted screw, self-drilling, and hollow-wall anchors
Equipment for installing epoxy anchoring systems
Equipment for installing threaded fasteners
Equipment for installing blind rivets
Equipment for installing toggle bolts
Equipment for a hardened concrete installation (wedge anchors)
Level Two

MODULE 64201-02 - ELECTRICAL INSTALLATIONS IN CLASSIFIED AREAS

- Transparencies
- Markers/chalk
- Blank acetate sheets
- Transparency pens
- Pencils and scratch paper
- Module Examinations
- Performance Profile Sheets
- Copies of Quick Quiz
- Overhead projector and screen
- Whiteboard/chalkboard
- Appropriate personal protective equipment
- Copies of the National Electrical Code® Article 504 and/or ANSI/ISA RP 12.6-1987
- Copies of 49 CFR Part 192 (Gas) and/or 49 CFR Part 195 (Liquid)
- Copies of API Recommended Practice
- Copies of your company policy and procedures manual
- Sample documentation for a classified area
- Listing of approved equipment and devices from the Underwriters Laboratory or Factory Mutual Research Corporation
- Working drawings for an electrical system in a hazardous location
- Seal-off fittings for vertical and horizontal runs
- Sealing compound kits
- Several fittings and a variety of sealing compound kits
- Rigid metal conduit nipples, sealing fittings, No.12 THHN conductors, and packing fiber/sealing kit
- Samples of a general safe work permit
- Samples of damaged protective equipment.
MO 02 - USE OF METERS AND TEST EQUIPMENT

- Transparencies
- Markers/chalk
- Blank acetate sheets
- Transparency pens
- Pencils and scratch paper
- Module Examinations
- Performance Profile Sheets
- Overhead projector and screen
- Whiteboard/chalkboard
- Appropriate personal protective equipment
- Copies of 49 CFR Part 192 (Gas) and/or 49 CFR Part 195 (Liquid)
- Copies of your company policy and procedures manual
- Electrical meters and test equipment
- Rubber gloves, sleeves, and blankets
- A moving-coil meter movement and/or a d’Arsonval meter movement
- DC ammeters
- Test equipment
- Clamp-on ammeters
- Digital and analog multimeters
- Multimeter batteries and fuses
- Voltmeters
- Ohmmeters
- Megohmmeters
- Handheld calibrator
- HART communicator
- Dead weight testers
- Decade box
- Analog oscilloscope
- A variety of test instruments, including:
  - Hi-pot testers
  - Recording meters
  - Dead weight gauges
  - Pneumatic signal simulators
  - Fluidized sand baths
  - Dry block calibrators
  - Continuity testers
  - Sound-activated phones
MODULE 64203-02 - GROUNDING

Transparencies
Markers/chalk
Blank acetate sheets
Transparency pens
Pencils and scratch paper
Module Examinations
Performance Profile Sheets
Overhead projector and screen
Whiteboard/chalkboard
Calculators
Appropriate personal protective equipment
Copies of 49 CFR Part 192 (Gas) and/or 49 CFR Part 195 (Liquid)
Copies of your company policy and procedures manual
Copies of the 2002 (or latest) edition of the National Electrical Code®
Copies of API Recommended Practices 2003
Various electrodes that meet the requirements for ground rods
Grounding electrode conductors, No. 4 grounding wire, ground rods, and panelboard
Grounding outlet boxes and devices
Nonmetallic-sheathed cable
Grounding clips
Grounding conductors, grounding wire, and metallic boxes
Earth ground resistance tester
Several ground testers and the necessary test equipment

MODULE 64204-02 - PROCESS CONTROL THEORY

Transparencies
Markers/chalk
Blank acetate sheets
Transparency pens
Pencils and scratch paper
Module Examinations
Performance Profile Sheets
Copies of Quick Quiz
Overhead projector and screen
Whiteboard/chalkboard
Appropriate personal protective equipment
Copies of 49 CFR Part 192 (Gas) and/or 49 CFR Part 195 (Liquid)
Copies of your company policy and procedures manual
Copies of the 2002 (or latest) edition of the National Electrical Code®
Copies of API Recommended Practices 2003
Drawing paper
A variety of detectors/sensors
Sample valve characteristic curves
Calculators
MODULE 64205-02 - SUPERVISORY CONTROL SYSTEMS

- Transparencies
- Markers/chalk
- Blank acetate sheets
- Transparency pens
- Pencils and scratch paper
- Module Examinations
- Performance Profile Sheets
- Overhead projector and screen
- Whiteboard/chalkboard
- Appropriate personal protective equipment
- Copies of 49 CFR Part 192 (Gas) and/or 49 CFR Part 195 (Liquid)
- Copies of your company policy and procedures manual
- Copies of ANSI C37.1
- Sections of shielded and unshielded twisted pair wiring, coaxial cable, and fiber-optic cable
- Sample drawings of data flow systems
- Sample block diagrams of SCADA systems
- Large sheets of plain drawing paper

MODULE 64206-02 - SWITCHES AND TRANSMITTERS (CT 25, 30, AND 31)

- Transparencies
- Markers/chalk
- Blank acetate sheets
- Transparency pens
- Pencils and scratch paper
- Module Examinations
- Performance Profile Sheets
- Overhead projector and screen
- Whiteboard/chalkboard
- Appropriate personal protective equipment
- Copies of 49 CFR Part 192 (Gas) and/or 49 CFR Part 195 (Liquid)
- Copies of your company policy and procedures manual
- Trace paddle switches
- Level switches
- Copies of Figure 18 with the callouts covered
- Common measuring elements
- Chart paper for a mechanical recorder
- Sample recorder calibration chart
- Sample records for documenting the testing, repair, and maintenance of switches and transmitters
- Copies of the Performance Verifications for Covered Tasks 25.1, 25.2, 3.0.0, and 3.1.0
MODULE 64207-02 - CONTROLLERS (CT 26)

- Transparencies
- Markers/chalk
- Blank acetate sheets
- Transparency pens
- Pencils and scratch paper
- Module Examinations
- Performance Profile Sheets
- Copies of Quick Quiz
- Overhead projector and screen
- Whiteboard/chalkboard
- Appropriate personal protective equipment
- Copies of 49 CFR Part 192 (Gas) and/or 49 CFR Part 195 (Liquid)
- Copies of your company policy and procedures manual
- Sample system diagrams, prints, or schematics
- Sample P&IDs
- Calculators
- Copies of the Performance Verifications for Covered Task 26

MODULE 64208-02 - VALVE ACTUATORS (CT 19.5)

- Transparencies
- Markers/chalk
- Blank acetate sheets
- Transparency pens
- Pencils and scratch paper
- Module Examinations
- Performance Profile Sheets
- Overhead projector and screen
- Whiteboard/chalkboard
- Appropriate personal protective equipment
- Copies of 49 CFR Part 192 (Gas) and/or 49 CFR Part 195 (Liquid)
- Copies of your company policy and procedures manual
- Copies of Figures 3 through 10 without their titles
- Valve actuator components (or photos of valve actuator components)
- Copies of Figure 17 with the callouts covered
- Sample valve maintenance log
- Actuator installation manuals
- Grease brush and/or grease gun
- Stem-type valves
- Gearbox case
- Copies of the Performance Verification for Covered Task 19.5
MODULE 64209-02 - PRODUCT MEASUREMENT (CT 44.1 AND 44.2)

- Transparencies
- Markers/chalk
- Blank acetate sheets
- Transparency pens
- Pencils and paper
- Module Examinations
- Performance Profile Sheets
- Copies of Quick Quiz
- Overhead projector and screen
- Whiteboard/chalkboard
- Appropriate personal protective equipment
- Copies of 49 CFR Part 192 (Gas) and/or 49 CFR Part 195 (Liquid)
- Copies of your company policy and procedures manual
- Copies of the 2002 (or latest) edition of the National Electrical Code®
- Copies of API Recommended Practices 2003
- Valve alignment chart
- Printed and handwritten delivery tickets
- Receipt logs and delivery tickets
- Copies of the Performance Verifications for Covered Tasks 44.1 and 44.2†
- Transducer output readings and manufacturer’s manuals
- Pycnometer
- Several product samples that have and have not been placed in a centrifuge
- Copies of Figure 25 with the callouts covered
- Orifice plates
- Manufacturer’s instruction manuals for flow measurement equipment, including
  - Mass flowmeters
  - Pressure transmitters
  - Pneumatic calibrators
  - Vortex flowmeters
  - Orifice meters
- Calculators
- Sample worksheets, tables, and charts, including
  - Frequency comparison worksheets
  - Comparison calibration worksheets
  - Square root extractor worksheets
  - Digital voltmeter comparison charts
  - Voltage output charts
  - Differential pressure tables
- Photographs of a variety of types of flow measurement equipment
Transparencies
Markers/chalk
Blank acetate sheets
Transparency pens
Pencils and scratch paper
Module Examinations
Performance Profile Sheets
Overhead projector and screen
Whiteboard/chalkboard
Appropriate personal protective equipment
Copies of 49 CFR Part 192 (Gas) and/or 49 CFR Part 195 (Liquid)
Copies of your company policy and procedures manual
Copies of the 2002 (or latest) edition of the National Electrical Code®
Copies of API Recommended Practices 2003
Portable analyzers
Personal analyzers
Lists of randomly ordered procedures for chromatograph testing, repair, installation, and maintenance
Copies of Figure 12 with the callouts covered
Samples of manufacturer’s instructions for a variety of chromatographs
Engineering designs
Copies of the Clean Air Act Amendments of 1990
Copies of the Performance Verification for Covered Task 55
Level Three

MODULE 64301-02 - TRANSFORMERS

- Transparencies
- Markers/chalk
- Blank acetate sheets
- Transparency pens
- Pencils and scratch paper
- Module Examinations*
- Performance Profile Sheets*
- Overhead projector and screen
- Whiteboard/chalkboard
- Appropriate personal protective equipment
- Copies of your local code
- Copies of your company’s policy and procedures manual
- Copies of the National Electrical Code®, latest edition
- Various types of transformers and equipment for examining and inspecting them
- Equipment for adjusting taps
- Sample electrical diagrams
- Potential and current transformers and instruments
- Equipment necessary for connecting transformers
- Transformer nameplates (or pictures of them)
- Testing equipment and transformers to test
- Transformer bushings and oil
MODULE 64302-02- SWITCHGEAR AND MCCS

- Transparencies
- Markers/chalk
- Blank acetate sheets
- Transparency pens
- Pencils and scratch paper
- Module Examinations
- Performance Profile Sheets
- Overhead projector and screen
- Whiteboard/chalkboard
- Appropriate personal protective equipment
- Copies of your local code
- Copies of your company’s policy and procedures manual
- Copies of National Electrical Code® articles on cable or the entire NEC®
- Various types of cables, cable cutters, and AWG gauge
- IEEE Recommended Practice for Electric Power Distribution for Industrial Plants
- Photos or drawings of several types of MCCs
- Copies of Figure 8 with all text covered
- Copies of a motor control schematic and wiring diagram
- Materials and equipment required for splicing cables
- Spliced cables with each type of termination
- Equipment for examining a switchboard
- Equipment for maintaining and inspecting switchgear
- Equipment for maintaining and inspecting circuit breakers
- Equipment for maintaining, testing, and inspecting MCCs
MODULE 64303-02 - LOW-VOLTAGE AND STANDBY POWER

- Transparencies
- Markers/chalk
- Blank acetate sheets
- Transparency pens
- Pencils and scratch paper
- Module Examinations
- Performance Profile Sheets
- Copies of Quick Quiz
- Overhead projector and screen
- Whiteboard/chalkboard
- Appropriate personal protective equipment
- Copies of your local code
- Copies of your company’s policy and procedures manual
- Copies of the National Electrical Code®
- Standby generator and equipment required for inspection of standby generators
- Equipment for measuring specific gravity
- Batteries and equipment required for load and impedance tests
- Batteries for inspection and necessary equipment
- Charger and necessary equipment for floating and equalizing voltage on a charger
- Charger and necessary equipment for maintenance and testing
- Inverters and necessary equipment for maintenance and testing
- Converter and necessary equipment for inspection
- UPS system and necessary equipment for maintenance and testing

MODULE 64304-02 - POWER QUALITY

- Transparencies
- Markers/chalk
- Blank acetate sheets
- Transparency pens
- Pencils and scratch paper
- Module Examinations
- Performance Profile Sheets
- Copies of Quick Quiz
- Overhead projector and screen
- Whiteboard/chalkboard
- Appropriate personal protective equipment
- Copies of your local code
- Copies of your company’s policy and procedures manual
- Copies of the National Electrical Code®, latest edition
- Photos of voltage regulators
- Photo or drawing of a power center
- Several grounding wrist straps
- Power quality equipment, manufacturers’ recommendations, and necessary materials or tools
Transparencies
Markers/chalk
Blank acetate sheets
Transparency pens
Pencils and scratch paper
Module Examinations
Performance Profile Sheets
Overhead projector and screen
Whiteboard/chalkboard
Appropriate personal protective equipment
Copies of your local code
Copies of your company's policy and procedures manual
Copies of the National Electrical Code®, latest edition
Sample frame sizes and any necessary tables
Necessary materials, equipment, and company/manufacturer procedures for
Verifying the proper operation of space heaters
Verifying protection systems
Connecting an electric motor for the correct rotation
Electrically testing motor bearings
Motor, oil, and necessary equipment for changing bearing oil in a motor
MODULE 64306-02 - FACILITY AUXILIARY SYSTEMS

Transparencies
Markers/chalk
Blank acetate sheets
Transparency pens
Pencils and scratch paper
Module Examinations
Performance Profile Sheets
Copies of Quick Quiz
Overhead projector and screen
Whiteboard/chalkboard
Appropriate personal protective equipment
Copies of your local code
Copies of the National Electrical Code®, latest edition
Photo of a pipeline facility building
Necessary equipment, company policy and procedures, and documentation forms for rectifier maintenance and blend system maintenance
Module 64307-02SCADA
Transparencies
Markers/chalk
Blank acetate sheets
Transparency pens
Pencils and scratch paper
Module Examinations
Performance Profile Sheets
Copies of Quick Quiz**
Copies of your company’s policy and procedures manual
Overhead projector and screen
Whiteboard/chalkboard
Appropriate personal protective equipment
Copies of your local code
A variety of SCADA screenshots
Documentation of an actual or hypothetical troubleshooting procedure