



This system shall be designed to teach industrial skills in electrical wiring. It shall contain the following items:

1. Mobile workstation, control panel, electro pneumatic panel, operator station,
2. 3-phase induction motors, student curriculum, and instructor's guide. Mobile Workstation

Shall be a welded steel unit designed for mounting all components, measuring a minimum of LxWxD - 48 x 60 x 30 inch. It shall include four casters for mobility and shall use a double-sided design for multiple student access.

#### Control Panel

Shall consist of a steel panel, painted and silk-screened with the following components. These components shall not be pre-wired to enable students to learn wiring skills:

Fused 3-phase safety switch -----1no.  
Padlocks -----2nos.

#### 3. Safety tags

- Pre-attached power cord (4 pole, 5 wire) -----1no.
- Lockout/Tagout mechanism -----1no.
- Nema 1 Control Cabinet, hinged, LxWxD - 42"x 32"x 8 " -----1no.
- 3-Phase Fuse Block with 3 fuses 2nos.
- 2-Phase fuse block with 2 fuses-----2nos.
- Ground Detection Indicators -----1no.
- Control Transformer -----1no.
- Reversing Motor Starter -----1no.
- Motor Starter-----1no.
- Set of raceways -----1no.
- Timer Relay, 4PST instantaneous, DPST timed (convertible N.O. or N.C.) -----1no.
- Control Relays, 4PST Convertible N.O. or N.C. -----1no.
- DIN rail terminal blocks -----50nos.

Note: Specifications are subject to change.

### Electro pneumatic Panel

Shall consist of a steel panel, painted and silk-screened with the following components. These components shall not be pre-wired to enable students to learn wiring skills. However, all pneumatic components shall be pre-plumbed.

Pneumatic Cylinder, 1.5 in bore x 4 in stroke -----	1no.
Cylinder foot mount -----	2nos.
Cam Actuator -----	1no.
Nema Limit Switch DPST with adjustable arm -----	1no.
Flow Control Valve -----	1no.
Pressure Switch, SPDT -----	1no.
Filter/Regulator -----	1no.
Electrical Junction Box with terminal strip -----	2nos.
Set of Flexible Conduit between junction box and other electrical components -----	1no.
Electropneumatic Valve, single solenoid 5/2, spring return -----	1no.
Set of assembled tubing and fittings to connect above components -----	1no.

### Operator Station

All components shall be pre-mounted but not wired

Black flush push button (1 N.O., 1N.C.) -----	3nos.
Red mushroom push button (1 N.O., 1N.C.) -----	1no.
Three position selector switch (1 N.O., 1 N.C.) -----	1no.
Red Indicator Lamp, push to test -----	1no.
Green Indicator Lamp, push to test -----	1no.
Amber Indicator Lamp, push to test -----	1no.
Set of Flexible Conduit connected to Control Panel -----	1no.
Set of Terminal Strips -----	1no.
Nema 1 Control Cabinet, hinged -----	1no.

### 3 Phase Induction Motor ----- 2nos.

1/3 HP, NEMA 56 Frame machine rated at 208-230/460 Volts, 3 phase. To include: 1- Motor Mounting plate, Single end shaft for safety

### Student Curriculum

The student curriculum shall consist of

(1) set of 2 Learning Activity Packets with 14 skills covering reading prints, selecting wiring sizes, installing industrial wiring, wire splicing, wire bundling, wire labeling, and layout.

### The student curriculum shall be designed

in a skill-based format that focuses on teaching industry- relevant tasks. The objectives shall be accomplished by organizing the learning material into a series of learning activity packets, which are further subdivided into three or more segments per packet. All learning material needed shall be contained in the packets including text material, laboratory equipment activities, and multimedia directions. No external text sources shall be required. The specific cognitive skills taught by each text passage shall be identified next to the passage. Each lab activity shall be identified by the industrial task taught. All activities shall be highly detailed with step-by-step instructions to facilitate a self-directed learning environment. A combination of step-by-step enabling activities and creative, problem-solving activities shall be provided. A self-review of five to ten questions shall be provided after each segment. The curriculum must be capable of both self-directed and instructor directed study. All activities must correlate directly to the hardware supplied, with detailed illustrations and diagrams.

Teacher's Assessment/ Portfolio Guides A teacher's guide shall be provided. It shall contain student data sheets, data sheet solutions, self-review answers quizzes, quiz answers, student skill record sheets, and authentic assessment. A quiz shall be provided for each packet. A question shall be provided in each quiz for each cognitive objective taught. All tasks listed in the packet shall be listed on personalized student record sheets. The Instructor's Package shall include directions for authentic skill assessment.

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