Industrial Maintenance Credentials & Upskilling
(TRC-6)

C-201 Electrical Systems 1
1. Apply electrical system safety
2. Connect and operate basic electrical circuits
3. Interpret electrical schematics and diagrams
4. Use a digital multimeter (DMM) to make electrical measurements
5. Analyze basic load circuits
6. Test and replace/reset fuses and circuit breakers
7. Connect and operate basic reactive components
8. Analyze basic combination circuits
9. Troubleshoot basic series and parallel electrical circuits
10. Connect and operate single-phase transformer circuits
11. Analyze Inductive Circuits
12. Analyze Capacitive Circuits

C-202 Electric Motor Control Systems 1
1. Apply approved safety practices for electric motor control systems
2. Interpret Ladder logic Schematics
3. Make proper electrical ground connections
4. Connect and operate a 3-phase motor
5. Connect and operate a manual motor control circuit
6. Select and install a control transformer
7. Connect and operate a basic ladder logic control circuit
8. Connect and operate a 2/3 wire magnetic motor starter circuit
9. Connect and operate a reversing motor control circuit
10. Connect and operate a hands-off-auto motor control circuit
11. Connect and operate automatic input devices
12. Connect and operate basic timer control circuits

C-203 Variable Frequency Drive Systems 1
1. Use a keypad to operate an AC variable frequency drive (VFD)
2. View and edit basic VFD parameters
3. Interpret a PLC program that controls 2/3-wire VFD operation
4. Operate and monitor a VFD
5. Reset a VFD after an error occurs
6. Program and operate a VFD for multi-speed operation
7. Program and operate a VFD for acceleration, deceleration, and braking

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C-204 Motor Control Troubleshooting 1
1. Troubleshoot motor control components
2. Use a clamp-on ammeter to measure motor current
3. Troubleshoot 2/3-wire motor control circuits
4. Troubleshoot reversing motor control circuits
5. Troubleshoot motor control circuits with automatic input devices
6. Troubleshoot timer control circuits
7. Troubleshoot an AC VFD motor control system

C-207 Programmable Controller Systems 1
1. Start up and shut down a PLC system
2. Configure an Ethernet/IP Driver
3. Transfer programs between a PLC / PC via point-to-point Ethernet
4. Transfer programs between a PLC / PC via USB serial
5. Operate and monitor a PLC
6. Connect, configure, and operate an HMI panel with Ethernet
7. Configure PLC discrete I/O
8. Program and operate a basic PLC logic program
9. Create a PLC project
10. Program and operate a PLC logic program that uses comparison instructions
11. Program and operate a PLC project that uses math instructions
12. Program and operate a PLC motor control sequence program
13. Program and operate a basic PLC sequence program

C-208 Programmable Controller Troubleshooting 1
1. Use status and diagnostic indicators to troubleshoot a PLC
2. Troubleshoot PLC inputs and outputs
3. Troubleshoot PLC power distribution system
4. Troubleshoot a PLC processor
5. Troubleshoot a PLC system with discrete I/O
6. Program and operate a multi-step PLC sequence program
7. Troubleshoot a multi-step PLC sequence program