



LOSS PREVENTION MANAGEMENT SERVICES INC.

Safety & Operational Training | Assessments

Interactive Training Courses



LP Management Services

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LOSS PREVENTION MANAGEMENT SERVICES INC.

Safety & Operational Training | Assessments

LP Management Services is a safety and operational consulting company that provides customized and results-driven loss prevention programs. Company or site specific training is designed to be flexible and assist in meeting your most important safety or operational priorities. Training programs are continually updated and targeted to mitigate operational impact or personal injury. We meet the needs of our customers by offering our training in different formats, including interactive hands on training that we can provide at your facility or at a nearby location if no space is available.

What makes LP Management Services' training different from other company's training, is that we don't just flip through presentation slides, we offer hands on and interactive adult learning opportunities! All of our trainers are highly qualified and many have 10+ years of experience serving in the US Navy Nuclear Program.

We have highlighted six interactive, hands-on learning experiences for review.

Electrical Safety & Lock-out/Tag-out 	Employee Qualification 	Industrial Controls Simulator Lab 
Motor Controls Simulator Lab 	Schematics & Diagrams Analysis 	Meter Usage & Application 



Electrical Safety & Lock-out/Tag-out Training



Arc flash dangers such as shock and arc blast are serious hazards. Hazard awareness training mitigates the risk of serious bodily injury or property loss. NFPA 70E is the leading standard for determining electrical hazards and protecting employees. NFPA 70E training will be coupled with pertinent OSHA Lock-out/Tag-out standards that apply to the work employees are performing. Case studies, table top exercises and videos will be utilized in the program. LP Management will also supply mockups that participants will use in the hands on portion of the training.



One of our many mockups that allows for hands on training. One possible LOTO training configuration, featuring a water circulation pump, local disconnect, motor starter, distribution panel, and simulated critical loads.



Electrical Safety & Lock-out/Tag-out Training



The proper use of safety equipment, knowledge of electrical hazards, and experience in applying LOTO devices is essential in worker safety. In our course, employees will use and apply actual LOTO devices to isolate a variety of points on our mock up boards. They will hang locks, fill out tags, utilize a variety of LOTO devices, and much more.

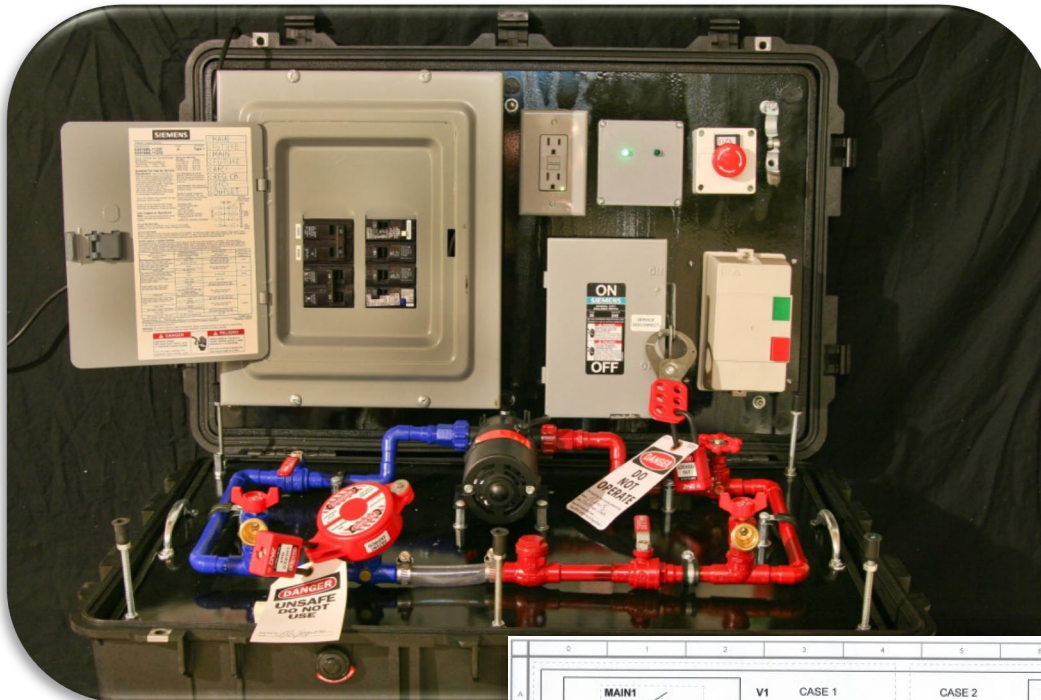


Some of the available PPE, LOTO devices and Meters the class will explore. In addition to reviewing the PPE itself, students will learn maintenance, care, inspection, and testing of the appropriate PPE.



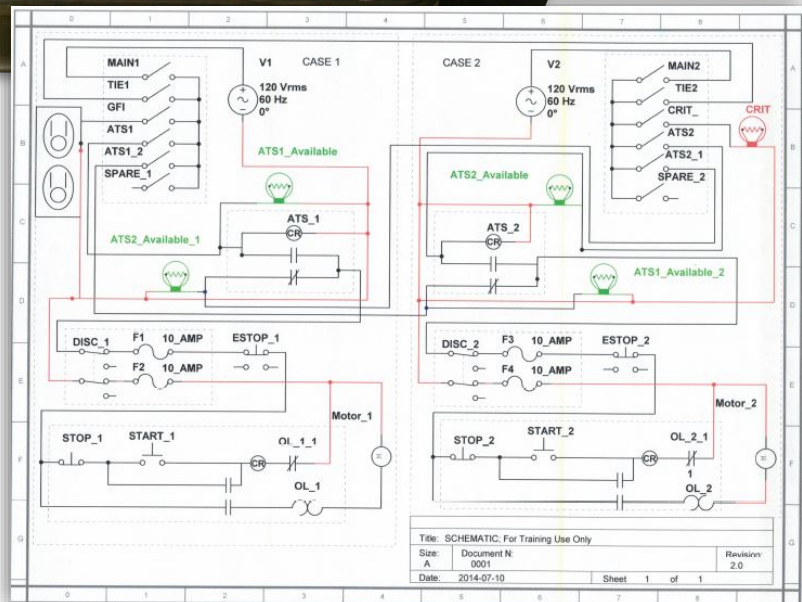
Electrical Safety & Lock-out/Tag-out Training

This electrical safety program will provide the student with the information needed to comply with the latest OSHA and company specific requirements in electrical safety. The participants will learn how to don personal protective equipment by actually putting the clothing on instead of seeing it on a presentation slide. We will furnish electrical safety PPE and equipment if none is available onsite.



Another training mockup that is fully operational. This particular mockup includes a breaker panel, motor control, ATS, and fully functional pump with supply and return loops.

Onelines and schematics of the mockups will be provided to the participants to ensure a complete understanding of the system they are training on.

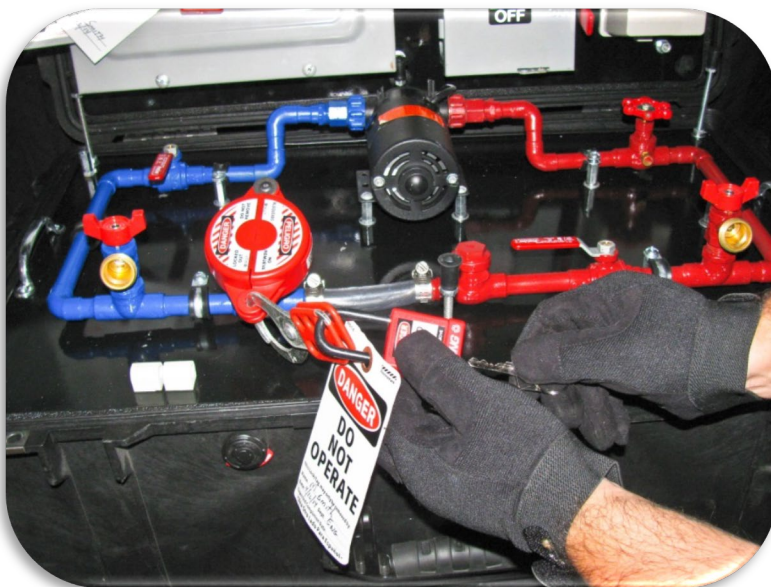




Electrical Safety & Lock-out/Tag-out Training

Our mockups are modular and include pumps, motor controllers, breaker panels and more. Employees are free to manipulate switches, breakers, and valves without the fear of damaging actual equipment in the plant. Our mockups can be utilized in a de-energized or energized state with a 120 volt supply. Of course every precaution is taken to ensure the participant's safety with work practice controls, GFCI's, and fused protective devices.

Here a student has donned the proper arc flash PPE and uses a Fluke T5-1000 to perform zero energy state verification checks or live-dead-live checks.



Students not only learn how to lockout electrical components, they also learn how to isolate mechanical systems using valve lockout devices.



Qualification Course

This training seminar always begins with safety. This is especially important given the hands-on portion that follows. Following the safety session, the course will delve into the technical aspects relevant to the student's day to day work practices. For instance, a course may encompass motors, UPS systems, troubleshooting, switchgear, controls, and so on.



Our qualification mockups include a variety of fully modular and functional pieces of equipment such as emergency power off (EPO) system, electrical distribution system, battery based uninterruptible power supply (UPS), variable frequency drives (VFDs), delta and wye winding simulator, lighting system with emergency circuits, series circuits, parallel circuits, CRAC unit, motor starter, and circulatory pump.



Qualification Course

Topics discussed in detail will focus on the particular responsibilities of the students whether that be uninterruptible power supplies, battery systems, electrical distribution, HVAC systems and air handling, lighting systems and controls, electrical metering and measurement, and electrical safety devices. A paper examination follows to assess students' grasp of the materials and understanding of the information presented.



Students will review common Arc Flash hazard labeling practices – both what they say and what they mean!

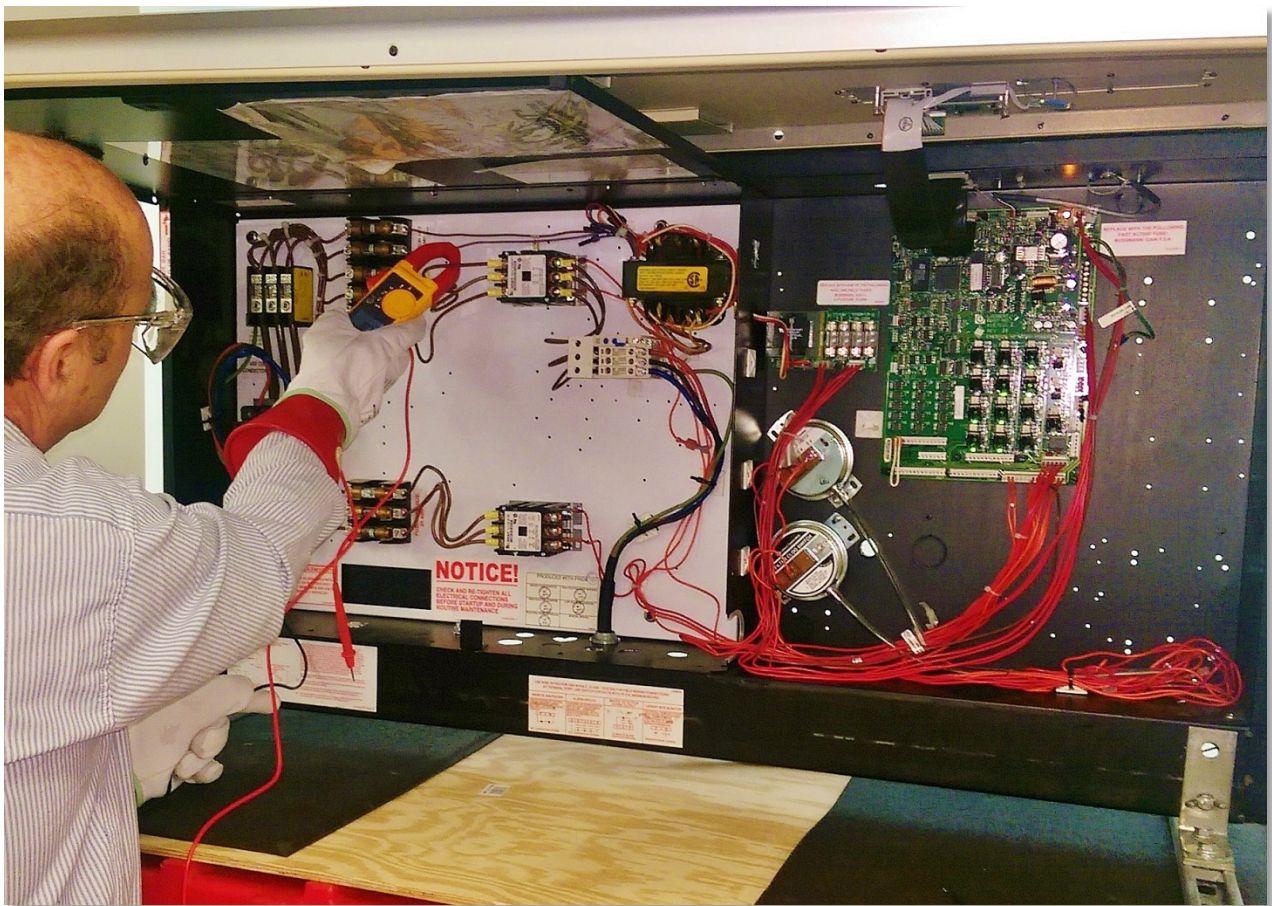


Practicing basic theory allows students to predict what the results are on a larger scale – if one element fails, what are the consequences to the rest of the system?



Qualification Course

The hands-on lab is one of the most important learning tools where students experience real life scenarios. Students work in teams (preferably pairs) on an assortment of pre-designated tasks at various lab stations. Upon completion of a given station, the team moves on to another station. Teams also have the opportunity to examine and operate the lab station used in the individual assessments.



Here a student learns proper technique and safety precautions while taking amp readings on our fully functional and modular computer room air conditioning (CRAC) unit.

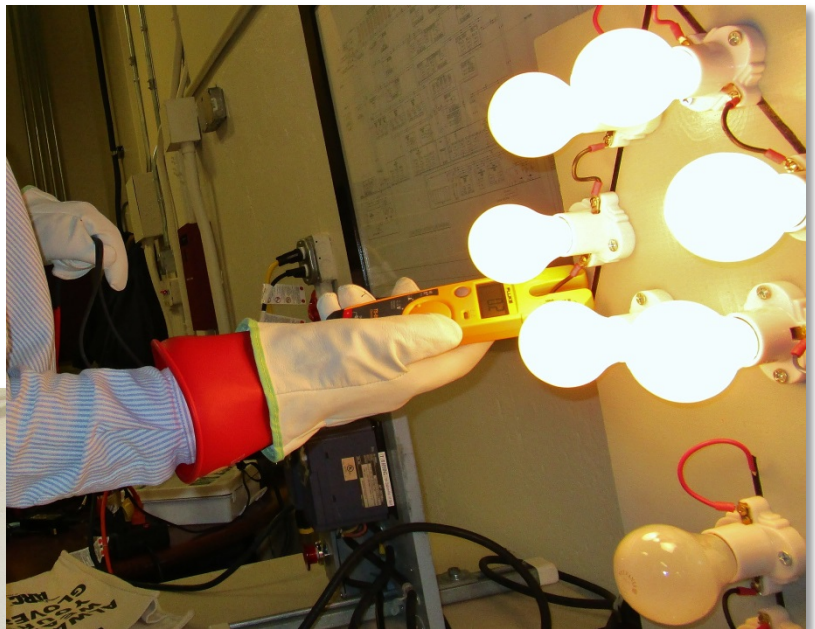


Qualification Course



Each student receives an individual assessment while attempting to complete a troubleshooting problem while being supervised. Points are given for successful planning, technical execution, and safety practices. Successful completion is achieved by meeting all safety criteria and diagnosing the problem.

Our mockups include visual aids to help students visualize electro/mechanical principles. Here a student learns the difference in transformer readings on a Delta vs. Wye configuration.



Students will also learn and practice skills on real, but de-energized equipment. This allows students to focus on proper technique without the hazards present. Here a student learns how to rack in and out a breaker while wearing proper PPE.



Industrial Controls & Motor Circuit Simulator Labs



Both of these training courses start with a short lecture consisting of schematics/diagrams overview and troubleshooting control circuits. Participants will then jump right into the simulator lab on the supplied laptop computers.

LP Management will supply, deliver and coordinate set up of laptops at the training location.



Participants will work in teams of 2 or 3 to correct the faults in the system. Instructors will be present to guide students along.



Industrial Controls & Motor Circuit Simulator Labs



In both simulator labs participants will be introduced to systems that consist of various devices such as mixing tanks, motors, valves, indicator lights, solenoids, control circuit etc. These systems are designed to perform certain processes that students can see operate in the simulator.



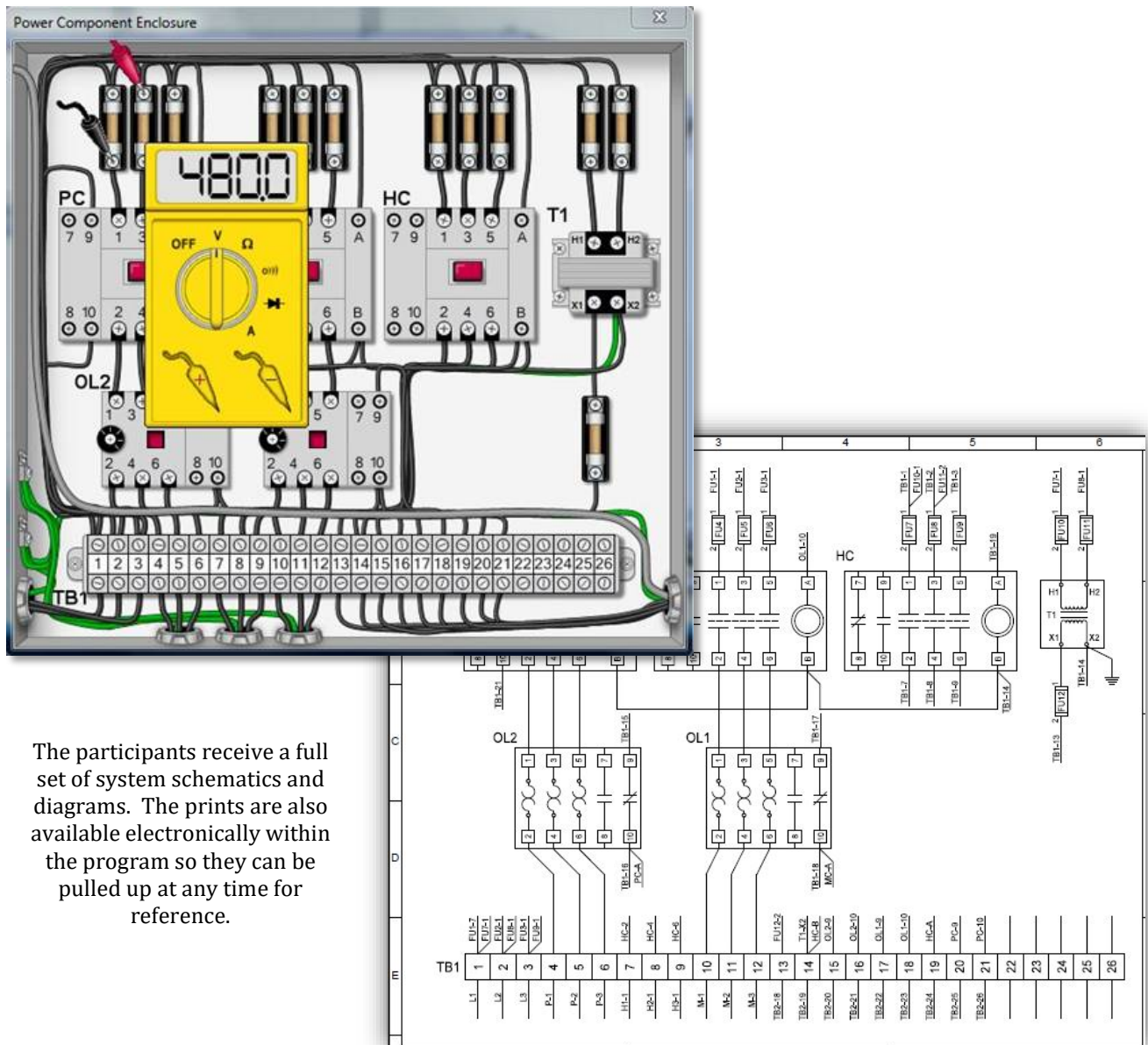
Screen shot of the entire system including mix tank, motor, pump, controller, etc.



Industrial Controls & Motor Circuit Simulator Labs



Faults will occur in that make the systems operate improperly. The student's job will be to figure out what the problem is by using critical thinking, a fully functional multi meter, simulated tools, schematic, diagrams etc. Students can access the contactors, relays, motor wiring, transformers etc. where they can take diagnostic readings to troubleshoot the problem.





Industrial Controls & Motor Circuit Simulator Labs

As in a real system, relays can be adjusted, wires can be disconnected, and fuses can be removed and tested. When readings are taken with the simulated multi meter, the readings will correlate with what a technician would expect to see in real life.



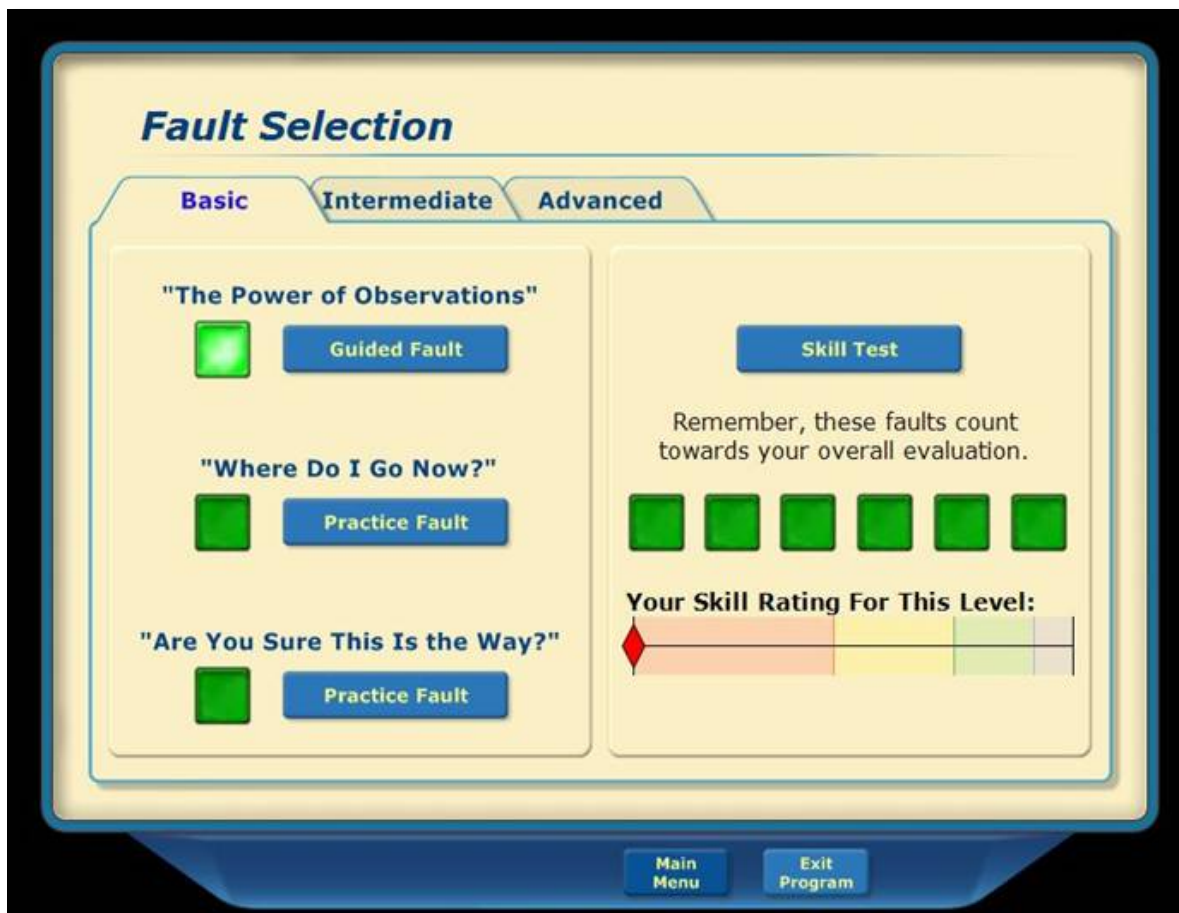
Circuits that can not be worked while energized also can not be worked live in the simulator. Participants will be required to isolate, lock-out, and test equipment prior to work.



Industrial Controls & Motor Circuit Simulator Labs

Once the fault is corrected, participants will then be rated on how well they fixed the fault. Ratings will be based on time, efficiency of checks, cost of materials, man hour cost, repairing proper components etc. Participants will then move on to a more difficult and time consuming fault.

Progress for all participants can be tracked and saved for future comparison. It will take the average technician/building engineer about 16-24 hours to complete all faults into the advanced levels. For future sessions, new faults can be introduced into the system.



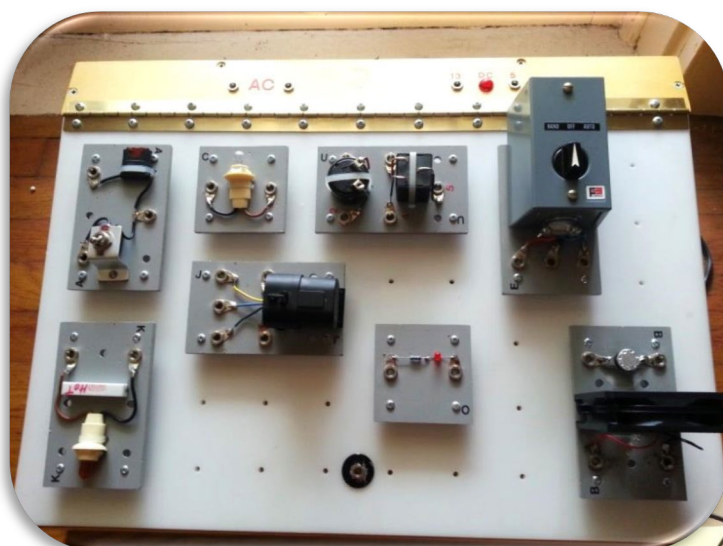
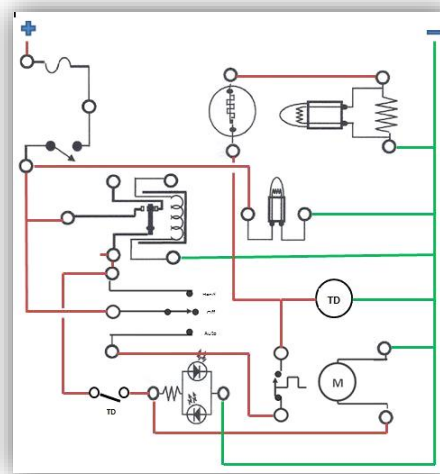
Progress is tracked throughout the training



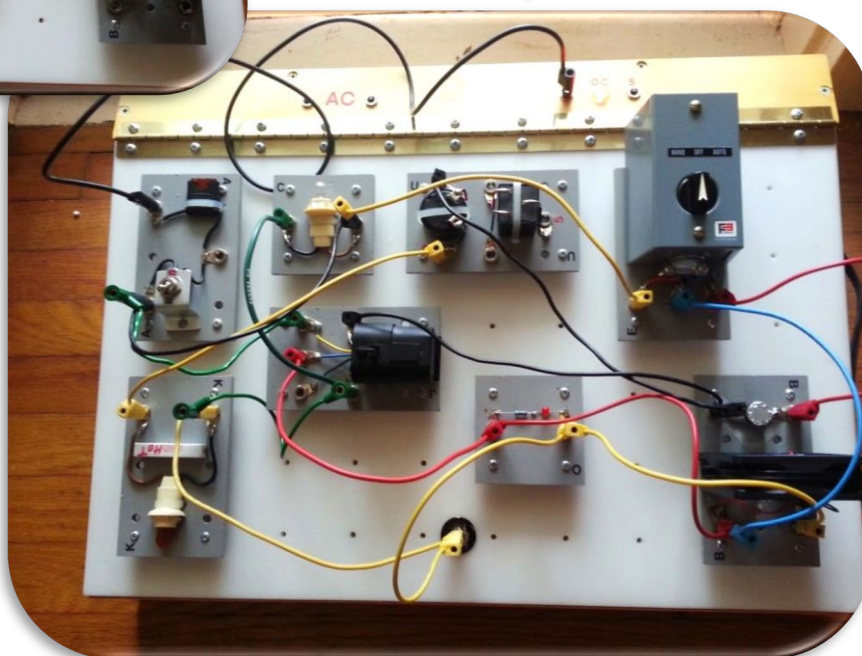
Schematics & Diagrams Analysis



Understanding the operation, maintenance and appropriate trouble response to power system equipment begins with a detailed knowledge of and ability to read and interpret electrical prints and diagrams. This course is designed to provide the knowledge of the various types of electrical diagrams used in the industry, and to develop the skills necessary to read, draw, and interpret these diagrams.

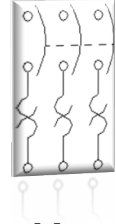


Participants use mockups to build circuits according to supplied diagrams. Once built, participants will test the circuits to determine if correct placement was achieved.

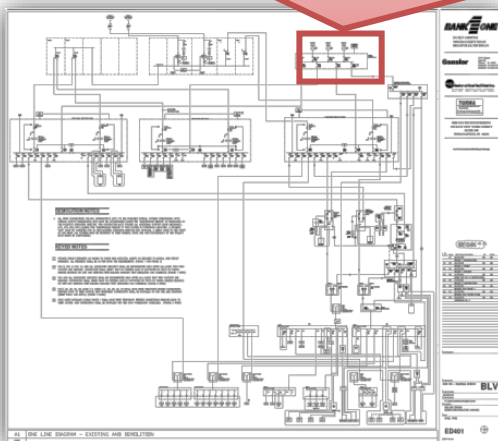
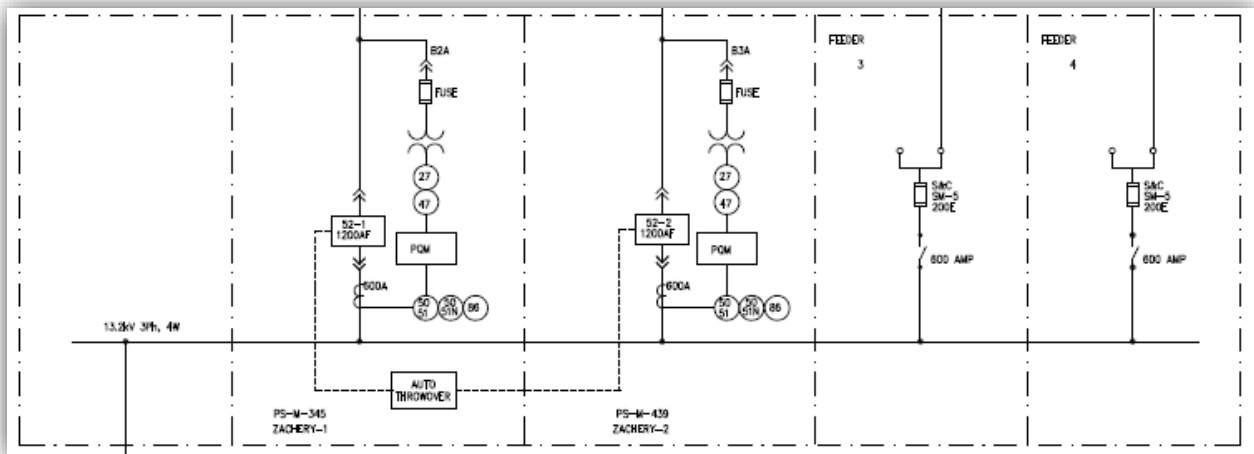




Schematics & Diagrams Analysis



With a basic understanding of diagrams, technicians and engineers are able to develop a logical pattern of troubleshooting that can aid in the successful analysis of systems. This class presents a logical approach to troubleshooting electrical power systems. Resources for predicting the likelihood of equipment failure will be provided, and a basic program for clearly identifying problems.



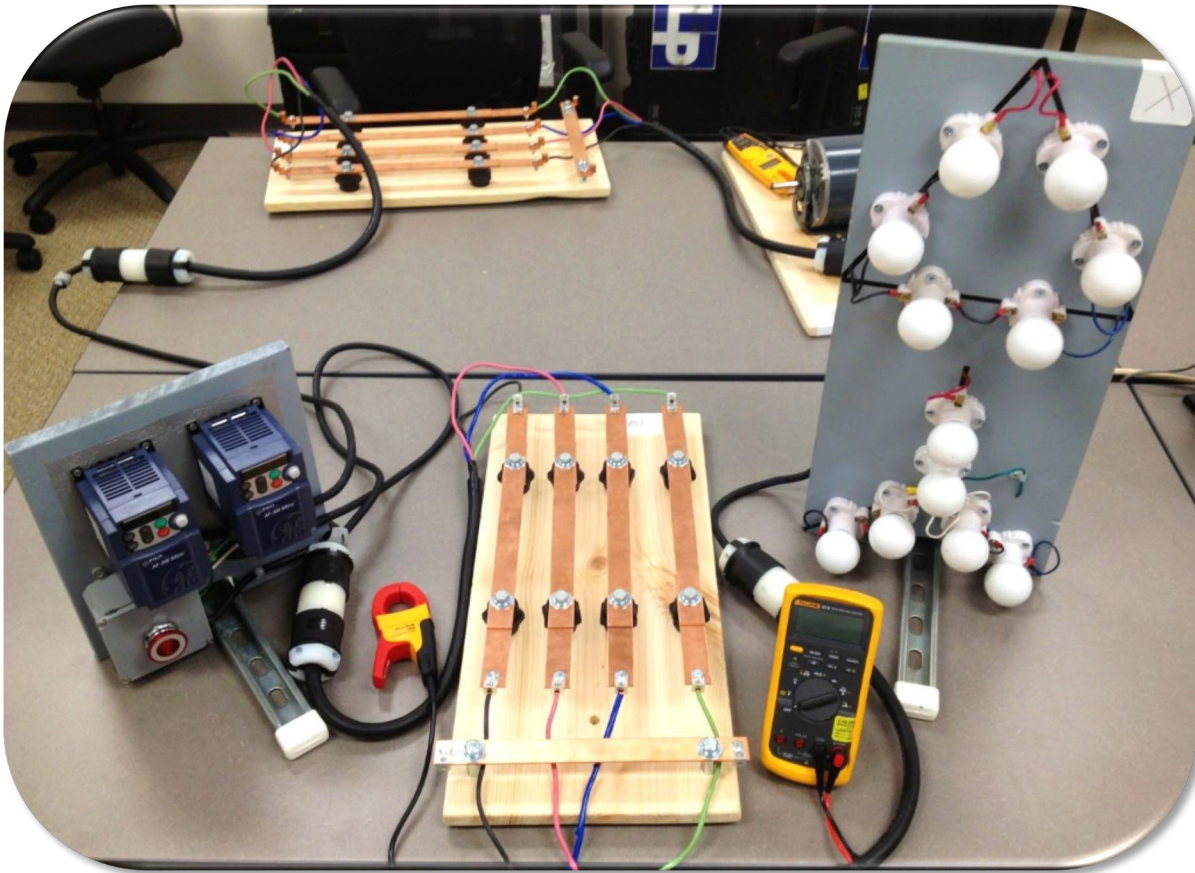
Through hands on training and table top exercises participants will learn to read and interpret:

- One Line Diagrams
- Three Line Diagrams
- Ladder Logic Diagrams
- Protective Relay Diagrams
- Panel Schedules
- And More...



Meter Usage & Application

Although a basic element of any testing or troubleshooting endeavor, meter usage is still widely misapplied or underutilized. This course utilizes hands-on practice to demonstrate the proper application of common electrical meters. Students will measure voltage, current, resistance, and other parameters, compare them to calculated values, and then interpret the findings to determine the condition of a system.



Participants use supplied mockups to take live readings. Here students test a 3 phase system with supplied VFD's and bus bars. Also, a mockup is used to demonstrate the difference between Delta and Wye transformer configurations.



Meter Usage & Application



Although the instructor will supply meters covered in the course, students will also use their workplace meters to ensure familiarity and understanding of their own equipment. This course not only covers simple meter usage and application, it seeks to develop and enhance the critical thinking skills of the participants. Below are just a few of the meters supplied and utilized during training.



Megger MIT400



Fluke 77 Series II



Fluke T5-1000



Fluke 87V



Fluke i400



Amprobe Ultra RS-3 Super

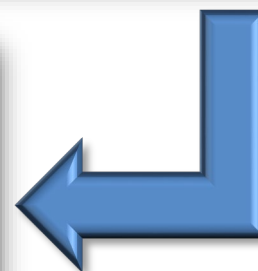
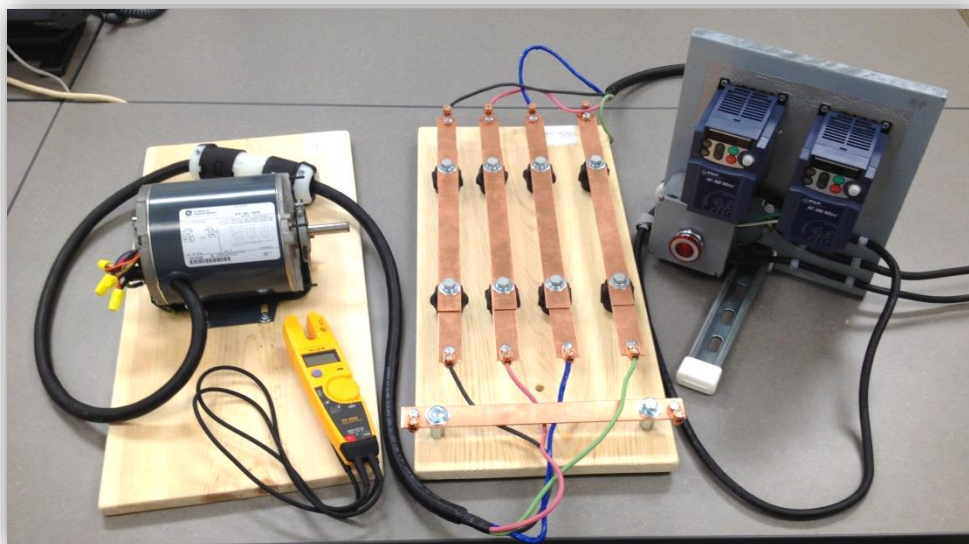


Meter Usage & Application

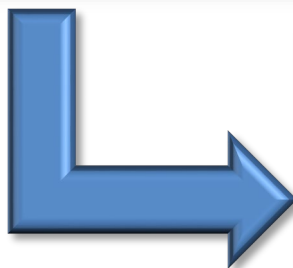


During the course,
table top exercises
are presented to
students.

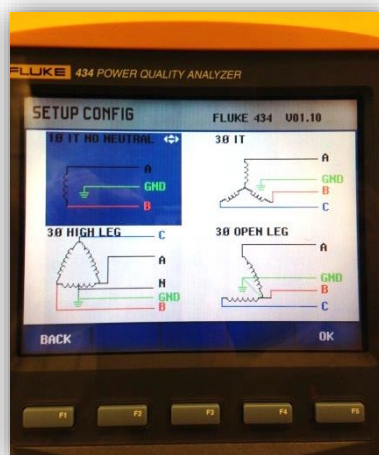
1. Complete the formulas for each term below *as it relates to a series circuit*:
 - a. Voltage: $E =$
 - b. Amperage: $I =$
 - c. Resistance $R =$
2. Choose a lamp and measure its resistance. _____
3. Install that lamp and another of the same wattage in the upper circuit. Predict what the current will be when energized. _____
4. Measure the current while energized. _____ Were you correct? _____



Readings are
safely taken on
functional &
energized
equipment.



Results are used to
troubleshoot and
diagnose conditions.





LP Management Services also offers a broad array of customizable training and assessment services. Contact us today to discuss how training and assessments can take your company to the next level.

Electrical Training

- Working in Critical Environments
- Battery & UPS Systems
- Control Circuit Troubleshooting
- Critical Electrical Operations
- Diagram Analysis
- Electric Plant Operation
- Failure Scenarios-Critical Thinking
- Generators
- Low Voltage Switchgear
- MOP Writing & Comprehension
- Medium Voltage Switchgear
- Power Grounding & Quality
- Troubleshooting Electrical Systems

Safety & OSHA Compliance

- Arc Flash & NFPA 70E
- Confined Space
- CPR & First Aid
- Electrical & Lock-out/Tag-out
- Fall Protection
- OSHA 10 Hour
- OSHA 501-Trainer Course
- OSHA 511-Standards Course
- OSHA Defensive Response
- Rigging Safety

Assessments & Auditing

- Comprehensive Facility Safety Audits
- LOTO & Electrical Safety Program Assessments
- Maintenance Preplanning & Assessments
- Employee Skills Assessment

Procedure Development

- Lockout Tagout Procedures
- Standard Operating Procedures
- Emergency Procedures
- Safety & Operational Policy Development