ELECTRICITY
LEVEL I

TRAINING DESCRIPTION:

This program is designed to enable an entry level or a crosstrained maintenance person to acquire the skills necessary to become an efficient part of the maintenance team. This course begins with a discussion of the fundamentals of electricity. During this discussion, basic meter safety and proper meter usage are covered. This enables the students to use their meters to see the fundamentals in action while performing hands-on exercises.

Electrical Safety is the next subject. OSHA Code of Federal Regulations 1910.332 requires employers to provide electrical safety training for all employees. During this section of the program, students will become familiar with the dangers of current, arc flash, and other electrical hazards. The students will also learn the proper personal protective equipment (PPE) to wear to protect themselves from the hazards. This section of the class includes some graphic material to show the tragic results that can occur when not following proper safety procedures. Single-phase systems are next on the agenda. During this discussion the student will be introduced to grounding, receptacles, series and parallel circuits, as well as hands-on testing labs using heaters and lights.

Once the student has a firm grasp of single-phase, there is a brief discussion on three-phase voltages and distribution systems. This area of the class is an excellent primer for Electricity Level II. Maintenance technicians can become frustrated if they have not been properly trained to read the prints and to use them as a troubleshooting tool. During this section of the class, we will show the students how to read basic prints, understand magnetism, relays, contactors, motor starters, and wire components according to a print.

We encourage the customer to supply us with a few of their basic prints to incorporate into this section.

TRAINING BENEFITS:

- Can help in meeting OSHA regulations for qualified electrical workers.
- A positive image reflected of the company.
- Technical qualifications clearly established.
- A well trained department is a safe department.

TRAINING TOPICS:

FUNDAMENTALS OF ELECTRICITY
- Voltage, Current, Resistance, and Meter Basics
- Meter Types
- Categories and Safety
- Voltage Types - Hands-On Labs
- Current and Resistance
- AC vs. DC
- Ohm's Law
- Series and Parallel Circuits
- Calculating Heat Loads

ELECTRICAL SAFETY
- Qualified vs. Unqualified
- PPE
- GFCI
- Approach Boundaries & Clearance Distances
- Actual Case Studies

SINGLE-PHASE DISTRIBUTION
- Voltage Drops with Heaters - Hands-On Labs
- Voltage Drops with Lights - Hands-On Labs
- Current Measurements in Series and Parallel

CIRCUITS HANDS-ON LABS
- 3-Way Switches
- Fluorescent Lights-Ballast Troubleshooting
- Grounding
- Receptacle Types and Loads

INTRODUCTION TO THREE-PHASE
- 3-Phase Generation
- 3-Phase Distribution Types
- Delta vs. Wye
- Grounding

THREE-PHASE MOTOR PRINT READING
- Drawing Types and Symbols
- Input and Output Devices
- Coils/Solenoids - Hands-On Labs
- Relays
- Hands-On Wiring Labs
- The Motor Starter
- 3-Wire Control
- Print Reading

CLASS DISCUSSION AND REVIEW

REMEMBER: Attendees should bring a multimeter, preferably the one they use on the job, with them for this hands-on training.

4-DAY TRAINING

CLASS SIZE: UP TO 14
CLASS LENGTH: 24 HOURS
CLASS NUMBER: N_E214

Lewellyn TECHNOLOGY