LP Management Services, Inc.
Specializing in Safety, Health and Risk Management Consultation

Basic Electricity I

Understanding basic electrical theory will significantly reduce the time and cost for maintenance and repair of power distribution and support equipment. This class provides an in depth discussion on the basics of electricity. Beginning with the building blocks of all materials, the class will quickly move towards AC and DC circuit analysis. The class will also include discussions on motors, generators, and other power equipment, solid state equipment, and an overall view of a typical building power distribution system. Included, also, will be a conversation about the relationship of all equipment in the distribution system and the effects that small changes may have on its entirety.

Duration: 8 Hour Program

Electrical Fundamentals
Basic Atomic Theory
Electrical Units of Measurement
Ohm's Law
Kirchoff's Laws
Power Equations
Uses of Real Power
Uses of Reactive Power
Power Losses Due to Heat
Equipment Grounding
Grounded vs. Ungrounded Systems

DC Circuit Analysis
Common Symbols
Component Construction
Circuit Calculations
Series Circuit Analysis
Parallel Circuit Analysis
Total Resistance Calculations
Inductor Construction
Uses of Inductors
Capacitor Construction
Uses of a Capacitor
Circuits with Reactive Components

AC Circuit Analysis
Discussion on Frequency
Peak vs. RMS
Reactive Components and Phase Angles
Transformer Construction and Operation
Induced Voltage Determination

Generators
Principles of Operation
Generator Construction
Operating a Generator
Effect on Operations with Load Changes
Speed and Frequency Determination

Motors
Principles of Operation
AC Induction Motor Construction
DC Motor Construction
Methods of AC to DC Conversion
Power Requirements