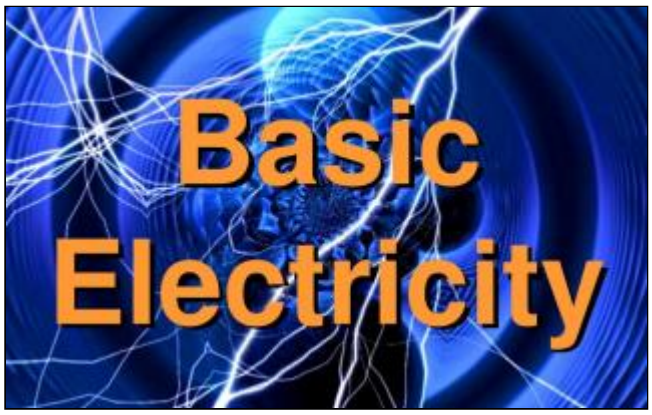
Hands-On

Basic Electricity

Course Description



Today, Modern Industrial Plants, Power and Electric Companies and all Network and Telecommunication companies contain a great deal of electrical equipment that needs to be understood, maintained and repaired. To perform electrical maintenance tasks correctly and efficiently, electricians and electrical maintenance personnel must have

1. A basic understanding of the fundamentals of electrical theory
2. A specific knowledge of the way electrical devices and equipment operate
3. A practical Hands-On Real-World Experience.

Basic Electricity reviews the fundamental principles of electrical theory as applied to electrical circuits and devices used in our common utilities such as transformers, inductors, and capacitors. The general topics covered in this unit include the nature of electricity basic electrical quantities and their units of measurement electrical circuits electromagnetism and devices used i.e. Safe practices, Voltmeters, Cable Types, basic soldering, and more...

NOTE Based on experience levels and modules covered, this 5-day course can be reduced to a 2 or 3 day course upon request.

Students Will Learn

- **To Define, understand and explain Basic Electricity**
- **To Define the key concepts of voltage, current, and resistance.**
- **To Explain the interrelationship of voltage, current, resistance, and power as described by "Ohm's Law," and apply them to solve for unknown electrical values**
- **To Define and describe resistance, and the common types of resistors used in electrical circuitry.**
- **To Describe the relationship between magnetism and electricity**
- **The basic electric meters, to measure the electrical values of voltage, current, and resistance.**
- **To Identify the characteristics of, and analyze, a DC series circuit.**
- **To Identify the characteristics of, and analyze, a DC parallel circuit**
- **To Analyze a DC compound circuit**
- **The Basics of Testing**
- **The Basics of Soldering**
- **And more..**

Prerequisites

None.

Course Outline

DAY 1

1) Introduction, paperwork, safety (60 minutes)
2) Overview of Basic electric Define, types of charges, sources of electric (60 minutes)
3) Break (15 minutes)
4) Discuss and define what the major components of electric are and how they relate to each other Voltage, Current, and resistance (60 minutes)
5) Lunch (60 minutes)
6) Discuss where electricity comes from and goes too Generation, Transmission, Distribution, End User (30 minutes)
7) Define Electromagnetism, Inductance and Inductors, Capacitors and Capacitance, watt and watt-hour (75 minutes)
8) Break (15 minutes)
9) Ohms Law review and how it is going to be used in basic electricity (30 minutes)
10) Daily course review, Q&A (remainder of the day)

DAY 2
(Note: This day will include the use of the breadboard/resistors/power supply/Fluke meter)

1) Introduction to series circuits and Ohms Law (60 minutes)
2) Series Circuits Analysis (60 minutes)
3) Break (15 minutes)
4) Continuation Series Circuit Analysis (120 minutes)
5) Lunch (60 minutes)
6) Continuation Series Circuit Analysis (120 minutes)
7) Break (15 minutes)
8) Continuation Series Circuit Analysis with Q&A (remainder of day)

DAY 3
(Note: This day will include the use of the breadboard/resistors/power supply/Fluke meter)

1) Introduction to parallel circuits (60 minutes)
2) Parallel Circuits Analysis (60 minutes)
3) Break (15 minutes)
4) Continuation Parallel Circuit Analysis (120 minutes)
5) Lunch (60 minutes)
6) Continuation Parallel Circuit Analysis (120 minutes)
7) Break (15 minutes)
8) Continuation Parallel Circuit Analysis with Q&A (remainder of day)

DAY 4
(Note: This day will include the use of the breadboard/resistors/power supply/Fluke meter)

1) Introduction to series/parallel circuits (60 minutes)
2) Series/Parallel Circuits Analysis (60 minutes)
3) Break (15 minutes)
4) Continuation Series/Parallel Circuit Analysis (120 minutes)
5) Lunch (60 minutes)
6) Continuation Series/Parallel Circuit Analysis (120 minutes)
7) Break (15 minutes)
8) Continuation Series/Parallel Circuit Analysis with Q&A (remainder of day)

DAY 5

1) Describe how a transformer is constructed and what a transformer does (90 minutes)
2) Review hazards associated with electricity (60 minutes) this will be emphasized everyday
3) Break (15 minutes)
4) Review of all material introduced (120 minutes)
5) Lunch (1 hour)
6) Q&A and review for test (60 minutes)
7) Break (15 minutes)
8) Testing, Q&A, and paperwork

Notes

NOTE Based on experience levels and modules covered, this 5-day course can be reduced to a 2 or 3 day course upon request.

Delivery Method

Instructor led with numerous Hands-On labs and exercises.

Equipment Requirements

(This apply's to our hands-on courses only)

BTS always provides equipment to have a very successful Hands-On course. BTS also encourages all attendees to bring their own equipment to the course. This will provide attendees the opportunity to incorporate their own gear into the labs and gain valuable training using their specific equipment.

Course Length

5 Days