

Course Name: Practical Electricity for Technicians

Course Overview:

This course is designed to teach technicians basic electrical concepts and procedures when working in the communications industry. Very few courses focus on the real-world aspects of electricity knowledge required for field service technicians. These technicians are faced with dealing with all types of electrical circuits. All aspects of this course can be easily customized to specific equipment or power systems.

Course Length: 2 days

Who should attend?

- Field Service Technicians
- Switch Technicians
- Field Engineers
- Managers/ Field Supervisors
- Design Engineers
- Electricians

You will learn:

- Basic electrical concepts
- Safety Precautions
- Proper measurements for current, voltage, grounding as well as other concepts like capacity and resistance
- AC and DC Power systems
- Static Electricity and ESD
- Set up, operate and interpret results on standard meters utilized by technicians
- Efficiently test and troubleshoot common problems
- Perform numerous hands-on activities
- How to measure voltage and current on T1 lines to verify connectivity

Prerequisites: None

Customizable Course: Yes

Course Content:

Electricity Primer

- Electricity Defined
- Electrons and Atoms
- Proton (positive charge)
- Neutron (no charge)
- Electron (negative charge)



- What is a charged atom?
- Friction, movement of electrons

Magnetism

- Poles & Fields

Common Terms and Rules Defined

- Ohm's Law
- Amps, Watts, Volts
- Lab Exercises

Electric Current

- Resistance
- Current Flow
- Electrical Resistance
- Ohms and meters
- Lab Exercises

AC Power

- Principles of Power Generation and Distribution Systems
- Single phase systems
- 3-phase systems
- AC Series/Parallel
- Circuits and Resonance
- Instantaneous Value
- Peak Value
- Peak to Peak Value
- Average Value
- Effective (RMS) Value
- Lab Exercises

DC Power

- Rules for DC Circuits
- Open and Short Circuits
- Power Ratings (resistors, lamps, power supplies)
- Lab Exercises

Hardware

- Switches
- Relays
- Battery
- Amplifiers
- Cells and Batteries
- Generators



- Lab Exercises

Grounding and Bonding

Safety

- Electrical Hazards--shock
- Grounding
- Shut-off systems
- Fuses
- Lab Exercises

ESD/Static

Measuring Devices

- Meter Sensitivity, Accuracy
- Voltmeter/DVOM
- Ammeter
- Ohmmeter
- Multimeter,
- Megger (Megohmmeter)
- Watt Meter
- Oscilloscope
- Lab Exercises

Telco and Cable Loop Circuits

- Type, Gauge, Cable Length
- CO impedances,
- Line Voltage/Current
- Test Points
- Lab Exercises

