

Electrical Fundamentals I Single-Day Class

**Scheduled Upon Request
(Factory or On-Site Availability Only)**

HELP YOUR TECHNICIANS TAKE THEIR ELECTRICAL SKILLS TO THE NEXT LEVEL!

Electrical systems play a critical role in today's refuse trucks and equipment. From basic controls to sensors and diagnostics, technicians must understand how electrical systems function and how to work on them safely and correctly. This course provides a clear, straightforward introduction to electrical fundamentals used in everyday service and maintenance work.

This single day course introduces the foundational principles of electricity, beginning with core theory and progressing into practical, real world applications used in daily service and maintenance.

In this class, students will explore:

- Electrical safety best practices and hazard awareness
- Fundamental electrical concepts, including voltage, current, and resistance
- Common electrical circuit types and how they function
- How to read and interpret electrical schematics
- Basic troubleshooting techniques for identifying and correcting electrical faults

Through a combination of classroom instruction and hands on learning, participants will gain the skills needed to confidently test, diagnose, and troubleshoot electrical systems with accuracy and consistency.



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Electrical Fundamentals I

Course Summary

Course Objectives

After completing this course, the student will be able to:

- Understand essential safety practices by reviewing best practice procedures, proper use of PPE, hazard classifications, and lockout/tagout requirements.
- Explain the fundamentals of electricity, including how electrical energy is formed and the differences between AC and DC power.
- Identify and compare electrical circuit types, and analyze how voltage, current, and resistance interact within each circuit.
- Apply core electrical theory by using Ohm's Law and the Power Formula to evaluate components and determine equipment performance without guesswork.
- Interpret electrical schematics through recognition of standard symbols and accurate reading of circuit diagrams.
- Diagnose electrical circuit faults by understanding common failure types and practicing effective testing and repair methods.
- Demonstrate troubleshooting proficiency by completing hands-on knowledge checks involving real-world fault scenarios.

Course Outline

1. **Safety.** Adhering to safety rules and guidelines is always a top priority for everything we do. Review best practices, personal protective equipment (PPE), hazard definitions and lock out tag out procedures.
2. **What is Electricity?** Learn how electricity is formed and the differences between alternating current (AC) and direct current (DC).
3. **Types of Electrical Circuits.** Learn the types of electrical circuits and how voltage, amperage, and resistance affect each circuit.
4. **Electrical Theory.** Overview and apply OHM's Law and the Power Formula, which are important equations for testing electrical components and knowing whether a device has failed without guesswork.
5. **How to Read Electrical Schematics.** Learn schematic symbols and how to read an electrical schematic.
6. **Faults in an Electrical Circuit.** Learn different types of faults that can occur in an electrical circuit and how to test and repair each fault.
7. **Knowledge Check.** Test your knowledge by troubleshooting various fault scenarios in a circuit.

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