



Technical Diagnostic Services Training Institute

Industrial Electricity 24 Hours

Who should attend?

Designed for field and plant personnel, supervisors and others with the need to learn the practical application of electricity. This course is excellent for new electrical personnel and cross-training.

Course Description:

Beginning with an overview of dc theory, students learn Ohm's Law and how to use it in real-life situations. Ac theory is covered in detail, progressing from series and parallel circuits (using motor controls as examples) to the operation and application of common electrical devices. Students follow a simple in-plant power system to learn terminology and theory of the devices. Typical in-plant equipment is covered, including motors, motor-control centers, protective relays, circuit breakers, transformers, batteries and others. Lastly, three-phase power is discussed, again with the practical application of the theory behind it.

Presentations will be focused on the needs of the participants, rather than a strict outline. Participants are asked to ask questions regarding power systems and their operation and components and practical examples are used to broaden their understanding. Each student receives a course text and a copy of Ugly's Electrical References.

TDSTI

15825 Trinity Blvd., Ft. Worth, Texas 76155
Phone: 817/465-9494 Fax: 817/465-9573
www.technicaldiagnostic.com frank@technicaldiagnostic.com



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Outline:

- I. Dc Electrical Theory
 - A. Dc circuits
 - 1. Series
 - 2. Parallel
 - B. Dc systems
 - 1. Batteries
 - 2. Control circuits
 - C. Ohm's Law
 - 1. How Ohm's Law is used everyday
 - 2. Practical exercises
- II. Ac Electrical Theory
 - A. Power
 - 1. Generation of sine waves
 - 2. Electromagnetic attraction
 - 3. Electromagnetic induction
 - 4. Motors
 - B. Power calculations using Ugly's
- III. Terms and Definitions
 - A. Resistance vs reactance
 - B. Capacitance
 - C. Frequency
 - D. Common terms
- IV. Power System Basics
 - A. Three-phase power
 - B. Wye connections
 - C. Delta connections
 - D. Typical components
- V. An Overview of Power System Operation
 - A. Components and functions
 - B. Transmission
 - C. Distribution
 - D. In-plant systems
 - E. Protective devices
- VI. Lab Sessions
 - A. Measuring voltage
 - B. Measuring current
 - C. Measuring resistance
 - D. Ohm's Law
 - E. Electromagnetism
 - 1. Attraction
 - 2. Induction
 - F. Simple control circuits
 - G. Phase angles and phase shift

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