Electrical System Training for Data Center Facilities

Two-Day Course Outline

HIGH VOLTAGE MAINTENANCE
A VERTIV Company

Ensuring Electrical Power Reliability and Safety

Data centers are complex and remaining knowledgeable on how to support their electrical power systems and components is critical.

Understanding the operation, maintenance and appropriate troubleshooting response to power system equipment is an integral part of proper operations of a data center and can help ensure reliability. Operators are required to have an in-depth understanding of schematics, theory, and operation of the power system.

As technology continuously evolves, it is imperative that operators stay up to date on the specific requirements for UPS systems, generator systems, and power systems redundancy. Maintaining electrical reliability and safety requires a high level of knowledge and expertise to be successful and comply with industry standards.

Participants who complete this course will learn about electrical power system theory and operation maintenance within data center facilities and gain an understanding of critical requirements.

Experts in Electrical Reliability

To learn more about HVM's Training Services, please contact us at 866-HVM-TEAM (486-8326).

Course Overview

This course is focused on electrical power systems management and safety in data center facilities. It provides an understanding of electrical system operation, maintenance requirements, and troubleshooting approaches to managing power system reliability and safety. The course also covers electrical system design, instrumentation, and control systems that are utilized in daily operations.

This class presents a logical approach to data center electrical power systems. Single Line drawings for theory, operation, and faults will be provided. This course will discuss predicting the likelihood of equipment failure and a process for clearly identifying problems. Understanding what is required for proper operation makes it easier to determine what is preventing correct operation. Site specific diagram analysis for troubleshooting will be practiced.

Course Duration: 16 Hours.

Two Day Seminar Course Outline:

Day 1

Introduction & Safety

- Safety
- Arc Flash
- Electrical Shock
- LOTO
- Power Fundamentals

Schematic Diagrams

- Basic Components
- Advanced Components
- Single Line Drawings
- Ladder Logic
- Transfer Equipment
- MTS/ATS Fundamentals
- MTS/ATS Operation
- Transfer Operations
- PDU Systems

UPS Maintenance

- UPS Theory
- N+1 Requirement
- SCR Operation
- Pulse Width Modulation
- Battery Operation
- UPS Operation
- Synchronization
- Bypass Operation Battery UPS
- Maintenance
- Load Test
- UPS Faults & Recovery

Day 2

Generators

- Generator Theory
- Field Excitation
- KW, VAR, and VA, PF
- Synchronous & Asynchronous Generators
- Paralleling of Generators
- Stator/Rotor
- Voltage Regulators
- Speed Control
- Lube Oil Systems Generator Operations
- Synchronization
- Auto Start
- Manual Start
- Genset Maintenance Load Test
- Generator Faults & Recovery

Training Materials

High Voltage Maintenance (HVM) will provide student manuals, supplemental materials, video presentations, and demonstration equipment. A "Certificate of Completion" is provided for students meeting or exceeding minimum course standards. Minimum course standards are defined as a 80% score on the written post-course examination.

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