Content Community Connection

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UPS System Training

Course details: https://www.electricityforum.com/electrical-training/ups-system-training

COURSE DATES AND TIMES

November 20-21 , 2024

10:00 am - 4:30 pm ET

UPS System Training - Our 12-hour live online instructor-led training course is designed for Industrial, Commercial and Institutional electrical engineering and plant electricians, maintenance technicians or electrical design engineers. UPS Systems are essential, but only valuable if you have the people on staff trained to work with them in emergency situations. Our Uninterruptible Power Supply (UPS) Systems live online course is designed to make sure your plant and facility personnel are ready for anything.

This Uninterruptible Power Supply (UPS) Systems course is designed for electrical professionals, including plant electricians, maintenance technicians or a supervising engineers. Our course examines the following important questions: How often do you get a chance to work with the Uninterruptible Power Supply system in your facility? Do you know what steps to take in the event of an emergency so that your facility can be kept up and

running? What is your procedure if something goes wrong? What about regular testing and preventive maintenance?

This 12 hour technical course begins with a discussion of the need for UPS systems. It then covers the relative comparisons between various UPS topologies and their modes of operation. The batteries used for UPS systems are covered next. How a battery works, their maintenance, safety and testing is thoroughly discussed.

LEARNING OBJECTIVES:

- Understand The Functionality Of Different UPS Type
- Size The UPS And Battery Bank For An Application
- Recommend Solution For A Practical Implementation
- Perform Maintenance And Parameter Settings On A UPS
- Perform Battery Maintenance And Results Interpretation
- Design A Complete UPS System And Recommend The Proper Grounding Solution

WHO SHOULD ATTEND

- Industrial, Commercial, Institutional Electrical Engineers
- Electrical Maintenance Tradespeople & Technicians
- Instrumentation And Control Engineers
- Power System Protection And Control Engineers
- Consulting Electrical Engineers
- Building Service Designers
- Data Systems Planners And Managers
- Other Electrical Personnel Involved In The Maintenance Industrial, Commericial And Institutional Power Systems

STUDENTS RECEIVE

- 100-Page Digital Power Quality/UPS Handbook - Value $20
- 1.2 Continuing Education Unit (CEU) Credits
- A **FREE** Magazine Subscription (Value $50)
- **$100** Coupon Toward Any Future Electricity Forum Event (Restrictions Apply)
- Course Materials In Paper Format

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COURSE OUTLINE

UPS System Training Course Outline

DAY ONE

Why Have a Uninterruptible Power Supply System (UPS)

Types and Duration of UPS

- **Power System Disturbances**
  - Sags

- Surges And Spikes
- Outages
- Phase Relationships

The CBEMA Curve

Three General Types of UPS

- Kinetic (Motor Generator Sets)
- Flywheel

Static

- Rectifier
- Batteries
- Inverter

THREE TYPES OF STATIC UPSs

- The Traditional UPS
- The Static UPS
- The Static UPS With Bypass

REVIEW OF PASSIVE ELECTRONIC COMPONENTS

Volts, Ohms and Amps in DC and AC Circuits

Resistors

Capacitors

- Formed Caps
- Failure Mode Of Electrolytic Capacitors

Inductors

- Coils And Chokes
- Single Phase Transformers
- Three Phase Transformers
- Wye
- Delta

RLC Circuits in Series and Parallel

- Tuned Circuits
- Harmonics
- Ferro Resonance

REVIEW OF ACTIVE COMPONENTS

Diodes

- Half-Wave Rectification
- Full-Wave Rectification
- Polyphase Rectification
- Wye/Delta Rectification
- Troubleshooting Diodes

Transistors

- Applications Of Transistors
- Troubleshooting Transistors

Thyristors

- SCRs
- Applications
- Troubleshooting

TRIACS

- Applications
- Troubleshooting

IGBTs

- Applications
- Troubleshooting
- Triggering Circuits

Operational Amplifiers

- Instrumentation Amplifier
- Inverting Amplifier
- Non-Inverting Amplifier
- Ramping Applications

DAY TWO

HOW BATTERIES WORK

Primary Batteries

Secondary Batteries

Lead Acid

- The Chemistry
- Battery Types
- Capacity Factors
- S-Curves
- Battery Safety And Maintenance
- Float And Equalize Voltages
- Load Testing

Lithium Ion

- The Chemistry
- Battery Types
- Capacity Factors
- Battery Safety And Maintenance
- Float And Equalize Voltages
- Load Testing

UPS TOPOLOGIES

Single Phase

- Rectifiers
- Inverters

Three Phase

- Rectifiers
- Inverters

INSTALLATION COORDINATION AND BEST PRACTICES

Equipment movement & placement

- Weight loading, raised floor vs concrete floor
- Seismic provisioning

Bonding & Grounding

- Bonding with respect to raised floor systems
- Grounding requirements as per CEC and NEC

Cable management

- Best practices for Teck vs conduit
- Sizing and terminations

Contractor issues

- Recommended pre-commissioning checklists
- Coordination with GC for HVAC and structural provisions
- Environmental requirements for decommissioning old units during equipment swaps

TROUBLESHOOTING & MAINTENANCE

Expected electrical values

Typical features of UPS HMI or software for alarming & trending

Manufacturer's recommending maintenance practices Installation

- Quarterly Checklists
- Annual Checklists
- Tools And Equipment
- Basic Arc Flash Electrical Safety

COURSE SCHEDULE:

Both days:

Start: 10 a.m. Eastern Time
Finish: 4:30 p.m. Eastern Time

Contact us Today for a FREE quotation to deliver this course at your company’s location.

https://www.electricityforum.com/onsite-training-rfq