



UPS Systems & Battery Chargers

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| 01 Sep -05 Sep 2024 | London | 5500 | Register Now |

Maintenance & Troubleshooting

Introduction

An uninterruptible power supply (UPS) is a battery-powered electronic device that continues to supply electricity to the load for a certain period of time during a utility failure or when the line voltage varies outside the normal limits. Its typical application. Besides the backup, most UPS also provide surge protection. Modern UPS can either be of the static type or the rotary type.

A sudden loss of power will disrupt most business operations and could lead to a company being unable to trade. Where a company regards electrical power as critical then there will be a need for a continuous or back up power system. The installation of a UPS will provide the necessary continuity. Selecting the correct type of battery will enhance and optimize the performance of the UPS. There are however problems with these installations when there is a need for maintenance especially the use of by-pass. Power Quality compatibility problems may cause failure, which was the reason for the original UPS installation.

The seminar will highlight:

- The importance of a UPS system
- Types, care and maintenance of batteries
- Construction and functionalities of the UPS
- Types of static and rotary UPS systems
- Stand-by generators considerations

Objectives

At the end of this seminar, you will learn to:

- Understand the importance of UPS
- Design the correct type of UPS system
- Analyse the characteristics of batteries
- Understand the role of the stand-by generator
- Appreciate the functions of the UPS major components

Training Methodology

Each seminar participant will receive a copy of the comprehensive seminar notes. The presenter will outline and discuss the topics using computer displays, videos and power point presentation. The seminar is designed to have an interactive format to maximize delegate participation. Questions and answers are encouraged throughout and at the daily sessions. Needs-Based case-studies and examples will be discussed in problem solving workshop sessions.

Organizational Impact

Upon completion of the seminar the organizational impact would be:

- Technical training and up-skilling to improve and realise the full potential of a competent workforce
- Productivity increase through minimisation of project time acceptance/design and testing
- Identification for opportunities of improvements due to deep understanding of the presented state-of-the-art UPS and battery technologies
- Networking of personnel with technology leaders and other engineers and technicians with strong field experience
- Attitude change of workforce, as continuous follow up of new technologies and their up taking could otherwise create workforce with high resistance to change due to lack of understanding
- Ensure safety practices are adhered when carrying out maintenance activities

Personal Impact

On successful completion of this seminar, delegates will be able to:

- Understand the basis for the use of a UPS
- Understand Critical Load Applications
- Have an appreciation of Power Problems
- Be able to review the installation and maintenance requirements of a UPS and Stand-by power installation
- Be able to improve reliability by improving the resilience of an electrical installation

Who Should Attend?

The technicians and maintenance staff will be able to comprehend the types, construction, operations, function of UPS and batteries. This will enable them to carry out effective maintenance activities.

This seminar is suitable to a wide range of professionals but will greatly benefit:

- Electrical engineers
- Maintenance technicians
- Electrical supervisors
- Engineering professionals
- Project engineers

SEMINAR OUTLINE

DAY 1

Introduction and Importance of a Resilient System

- Introduction to resilient systems
- UPS power sources and regulations
- Critical loads and equipment categories
- Power quality and mains failure
- Standby generator set characteristics
- Generator sizing and compatibility
- Protection devices and switches
- UPS or generator

DAY 2

Static UPS

- Characteristics of on line and offline UPS
- Double conversion UPS
- Delta conversion UPS
- Transformer based and transformerless UPS
- UPS operation modes
- UPS components functionality and filters
- UPS rating and power factor
- Parallel systems and redundancy

DAY 3

Rotary UPS and Maintenance

- Components of diesel rotating UPS or DRUPS
- Operations of DRUPS
- Types and configuration of DRUPS
- Commercial static UPS and operation modes
- UPS maintenance
- Generator maintenance
- Generator size considerations
- New generation standby generator set

DAY 4

Batteries Types and Chargers

- Lead acid battery characteristics
- Nickel cadmium battery characteristics
- Storage and care of batteries
- Choosing battery size and location
- Charging methods and type of chargers
- Battery care
- Battery safety
- Battery maintenance

DAY 5

Battery Monitoring System and Preventive Maintenance

- Merits of battery monitoring system
- Battery monitoring system architecture
- Condition monitoring for UPS system
- UPS safety and hazards
- Harmonics
- UPS glossary
- Case study

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- Wrap up session, Q&A



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