

Uninterruptible Power Supply (UPS)

IT & IT Engineering
Kigali (Rwanda)
10 - 14 Feb 2025

UK Training

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Uninterruptible Power Supply (UPS)

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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. It is a typical application. Besides the backup, most UPS also provide surge protection. Modern UPS can either be of the static type or the rotary type.

This course on the importance of Uninterruptible Power Supply UPS is of great interest where electrical installations require continuous power supply. Today's reliance on power from the grid sometimes poses new issues like power quality and interruptions. This training course will address issues pertaining to power quality and mitigation techniques. A closer look at the uninterruptible power supply components and functionalities will be discussed. The battery system which forms a tan integral part of the uninterruptible power supply will be scrutinized in view of its construction, characteristics, merits, and demerits. The state-of-the-art diesel rotary uninterruptible power supply will be deliberated in detail.

Course Objectives Of Uninterruptible Power Supply UPS

- Define the roles of an uninterruptible power supply with regard to the types of loads it should protect
- Understand the different types and construction of batteries installed in an uninterruptible power supply
- To appreciate the merits of the fully automated battery monitoring system
- Identify the components in the uninterruptible power supply
- Understand the functionalities and operations of each component of the uninterruptible power supply
- Competence to perform maintenance by switching on to the bypass mode
- Be able to interpret the alarms and execute troubleshooting techniques
- To identify the particular type of uninterruptible power supply unit installed at your premises

Course Outlines of Uninterruptible Power Supply UPS

A decorative graphic in the bottom right corner shows a chessboard with several chess pieces, including a king, a queen, and a pawn, set against a background of concentric circles.

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Day 1

Fundamentals of Uninterruptible Power Supply

- Uninterruptible power system concepts and resilient systems
- Single-input and double-input uninterruptible power systems
- Merits of installing an uninterruptible power system
- Power quality issues and outages
- Simple uninterruptible power system designs
- Uninterruptible power supply system versus standby diesel generators

Day 2

Types and Construction of Batteries and Battery Chargers

- Different types of battery technologies and characteristics
- Construction and Characteristics of lead-acid batteries
- Construction and Characteristics of nickel-cadmium batteries
- Care of batteries
- Battery monitoring systems
- Types, construction, and characteristics of battery chargers

Day 3

Characteristics and Functionalities of Various Uninterruptible Supply Systems

- The online and offline uninterruptible power systems
- Uninterruptible power supply components and functionalities of filters
- Double conversion uninterruptible power systems
- Transformer base and transformer-less uninterruptible power systems
- Uninterruptible power systems operation modes
- Parallel systems and redundancy

Day 4

Construction and Operation of the Diesel Rotary Uninterruptible Power System

- Concept of the diesel rotary uninterruptible power system or DRUPS
- Construction of DRUPS
- Operation of DRUPS
- Types and characteristics of DRUPS
- Merits of DRUPS
- Challenges facing DRUPS

Day 5

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Installation, Applications, Protection and Maintenance of Uninterruptible Power Systems

- Safety and care of uninterruptible power systems
- Importance of battery and uninterruptible power systems maintenance
- Uninterruptible power system protection
- Troubleshooting uninterruptible power systems
- Condition monitoring of uninterruptible power systems
- Case studies, selection, and design
- Q&A and wrap-up session

A graphic illustration of a chessboard with several pieces. A large gold king piece is in the foreground on the right, with a silver pawn and a silver knight behind it. The board is checkered, and there are concentric white circles in the background.

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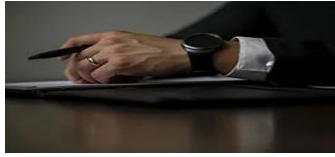
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