SCANDINAVIAN ACADEMY

Training and Development

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Course: Advanced UPS System & Battery Chargers

Code	City	Hotel	Start	End	Price	Language - Hours
507	Brussels (Belgium)	Hotel Meeting Room	2025-12-29	2026-01-02	5950 €	En - 25

Course Description

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. 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.

Course Objective

The course is intended to develop knowledge of the need for a UPS, types available, UPS components, batteries, generators and maintenance.

Training Methodology

The course is conducted as modular lectures with encouragement for the delegate to interact. Case studies are included to illustrate how the UPS can provide reliability and create possible problems when not installed and maintained correctly.

Questions are welcome throughout the course and during the break sessions.

Organisational Impact

Delegates will return to their organizations equipped with new knowledge and skills that will enable them to understand more fully the requirements, roles and maintenance of UPS and battery systems.

Your standby and backup systems can be refined to ensure maximum resilience at minimum cost.

Personal Impact

On successful completion of this course, delegates will:

- 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

Competencies Emphasized

This Program aims to enable participants to develop the following competencies:

- Understanding of the reasons for, and benefits of, a UPS and its battery system.
- Understanding how a UPS works.
- Analysis of critical loads and the benefits of supporting them with a UPS.
- Power Quality analysis; maintenance of electrical installations.
- Understanding of resilience and reliability issues relating to power quality.

Who Should attend?

This course is directed at electrical technicians, maintenance professionals and electrical engineers who would like to expand their knowledge of UPS systems.

Course Outline

DAY 1: Introduction to the Resilient System

A sudden loss of power causes disruption to any business where there is no stand-by or safety service, the course introduces the term resilience.

- Introduction
- Regulations
- Critical loads
- Purpose of an Installation
- Compatibility
- Protection and Devices
- UPS or Generator
- Maintenance

DAY 2 : What is a UPS?

After identifying an item of load is critical then there is a need to protect or back-up the supply, a UPS is a solution.

- UPS Rating
- Parallel systems
- What is available

- Maintenance by-pass
- Off Line systems
- Redundancy
- On Line systems
- Interactive systems

DAY 3 : UPS Components

How does it work? A question often asked and in this module the method of operation is examined.

- Transformer methods
- Harmonics
- Invertors
- Twelve pulse rectifier
- Phase control
- Power factor
- Six pulse rectifier
- Static switch

DAY 4 : Batteries

Batteries are essential as an alternative store of energy providing the reserve power needed by the UPS after a mains failure. They are also dangerous especially during installation and maintenance.

- What is a battery?
- Storage and Care
- VLRA

- Choosing a battery size
- Size and location
- Charging
- Configuration
- Battery safety

DAY 5 : Generators and Site Planning

If a power failure exceeds the reserve battery capacity the system will fail but using a generator will ensure continuous power. Planning the site and considering the load will ensure a successful installation and careful maintenance planning will ensure reliability.

- Do I need a Generator?
- Environmental Constraints
- Mains failure
- Monitoring power
- UPS Compatibility
- Installing the UPS
- Generator size considerations
- Maintaining the UPS

The Scandinavian Academy for Training and Development employs modern methods in training and skills development, enhancing the efficiency of human resource development. We follow these practices:

- **Theoretical Lectures:**
  - We deliver knowledge through advanced presentations such as PowerPoint and visual materials, including videos and short films.
- **Scientific Assessment:**
  - We evaluate trainees skills before and after the course to ensure their progress.
- **Brainstorming and Interaction:**
  - We encourage active participation through brainstorming sessions and applying concepts through role play.
- **Practical Cases:**
  - We provide practical cases that align with the scientific content and the participants specific needs.
- **Examinations:**
  - Tests are conducted at the end of the program to assess knowledge retention.
- **Educational Materials:**
  - We provide both printed and digital scientific and practical materials to participants.
- **Attendance and Final Result Reports:**
  - We prepare detailed attendance reports for participants and offer a comprehensive program evaluation.
- **Professionals and Experts:**
  - The programs scientific content is prepared by the best professors and trainers in various fields.
- **Professional Completion Certificate:**
  - Participants receive a professional completion certificate issued by the Scandinavian Academy for Training and Development in the Kingdom of Sweden, with the option for international authentication.
- **Program Timings:**
  - Training programs are held from 10:00 AM to 2:00 PM and include coffee break sessions during lectures.