

Scandinavian Academy
Training Center

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Riyadh - Al Khaleej District - Sheikh Abdul Aziz Bin Abdul Rahman Bin Bishr Street - 13223 - Office No. 5 | P.O.BOX : 13224

Course: Advanced UPS System & Battery Chargers

Code	City	hotel	Start	End	price	Language - Hours
EE-507SA	Alula	Hotel Meeting	2027-08-08	2027-08-12	13950 SR	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 Center adopts the latest scientific and professional methodologies in training and human resource development, aiming to enhance the efficiency of individuals and organizations. Training programs are delivered through a comprehensive approach that includes:

- Theoretical lectures supported by PowerPoint presentations and visual materials (videos and short films).
- Scientific evaluation of participants before and after the program to measure progress and knowledge acquisition.
- Brainstorming sessions and practical role-playing to simulate real-life scenarios.
- Case studies tailored to align with the training content and participants work nature.
- Assessment tests conducted at the end of the program to evaluate the achievement of training objectives.

Each participant receives the training material (both theoretical and practical) in printed form and saved on a CD or flash drive. Detailed reports, including attendance records, final results, and overall program evaluations, are also provided.

Training materials are prepared professionally by a team of experts and specialists in various fields. At the end of the program, participants are awarded a professional attendance certificate, signed and accredited by the Scandinavian Academy for Training Center.

Program Timings: 9:00 AM to 2:00 PM

The program includes:

- A daily buffet provided during the sessions to ensure participants comfort.
- A closing ceremony on the final day to distribute certificates and celebrate participants achievements.
- **Note: All prices are exclusive of 15% Value Added Tax (VAT).**

Our Success Partners

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