Uninterruptible Power Supply (UPS) Systems: Design to Maintenance

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Lisbon (Portugal)

UK Traininig
PARTNER



Uninterruptible Power Supply (UPS) Systems: Design to Maintenance

Ref: 20220106_133829 Location: Lisbon (Portugal) Fees: 5900 GBP

Why This Course

Reliable power is critical for hospitals, data centers, industrial facilities, and any environment where downtime is unacceptable. Uninterruptible Power Supply UPS systems play a vital role in ensuring continuous operation, protecting sensitive equipment, and maintaining safety during power disturbances.

Understanding how to design, install, and maintain these systems is essential for engineers and technical professionals responsible for power continuity and electrical infrastructure.

The UPS Systems Program is an intensive 1-week course that provides a complete understanding of UPS fundamentals, system design, installation practices, and maintenance techniques. Through practical examples, hands-on methodologies, and insights into emerging technologies, participants will gain the expertise needed to manage UPS systems efficiently and confidently.

What You'll Learn and Practice

By completing this program, participants will be able to:

- Understand the principles, components, and types of UPS systems
- Select and design UPS solutions based on specific loads and applications
- Apply industry best practices for installing and integrating UPS systems
- Perform preventive maintenance, troubleshooting, and performance optimization
- Stay updated with future trends and technological advancements in UPS systems

The Program Flow

Day 1 - Introduction to UPS Systems

- UPS fundamentals and operating principles
- Overview of UPS types: static, rotary, and hybrid systems
- UPS topologies: online, offline, and line-interactive
- Power quality issues and how UPS systems mitigate them



Day 2 - UPS Design & Selection

- Load analysis and UPS sizing methodologies
- Battery technologies, selection, and sizing calculations
- Redundancy and reliability configurations N, N+1, 2N
- Environmental considerations including ventilation and temperature control
- Cost-benefit analysis of UPS system options

Day 3 - UPS Installation & Integration

- Site preparation, room layout, and physical requirements
- Electrical installation standards and wiring considerations
- Grounding, earthing, and protection systems
- Integrating UPS systems with existing electrical networks
- Commissioning, acceptance testing, and performance verification

Day 4 - UPS Maintenance & Troubleshooting

- Preventive maintenance: schedules, inspections, and documentation
- Battery maintenance, testing techniques, and replacement criteria
- Identifying and diagnosing common UPS faults
- Systematic troubleshooting and fault isolation methods
- Emergency procedures and handling critical failure scenarios

Day 5 - Advanced Topics & Future Trends

- Improving energy efficiency and reducing operating costs
- Smart UPS systems, IoT integration, and remote monitoring platforms
- Modular UPS architectures and scalability considerations
- UPS integration with renewable energy systems
- Emerging technologies shaping the future of UPS design

Practical Wins for Participants

Participants will complete the program able to:

- Design and specify UPS systems tailored to various operational needs
- Perform proper installation, commissioning, and integration of UPS systems
- Conduct maintenance and troubleshooting with confidence and accuracy
- Optimize UPS performance, reliability, and energy efficiency

Organizational Impact

Organizations benefit through:



- Improved power continuity and operational reliability
- Reduced downtime and equipment damage
- Enhanced maintenance efficiency and lower lifecycle costs
- Stronger compliance with safety and performance standards

Training Methodology

This program incorporates:

- Real-world UPS system case studies
- Hands-on calculation exercises and design activities
- Troubleshooting workshops and diagnostic scenarios
- Expert-led discussions on modern UPS technologies

Beyond the Course

Participants return ready to:

- Lead UPS system design, installation, and maintenance projects
- Ensure reliable power continuity in mission-critical environments
- Implement modern UPS technologies and energy-efficient solutions
- Uphold safety, compliance, and performance standards in electrical operations

