

Data Center Power Professional

3 DAYS 21



This course gives students an understanding of how power requirements impact the way data centers are designed and operated. From fundamentals of power distribution to critical power components and maintenance/safety, this course provides a granular understanding of the key challenges related to infrastructure investments and how to manage the complexities of change.

Learning Outcomes

Upon successful completion, students will be able to:

- Discuss the importance of data center power consumption to business, government and society in general, whilst trying to meet sustainability targets in a low energy future
- Identify the basics of voltage, current, power and power factor in 3-phase power circuits
- Recognize the power requirements of modern ICT loads, especially dual-cord designs and their purpose
- Recognize the competing models for power redundancy architecture, concurrent maintainability and fault tolerance
- Explain the concepts of Reliability, Availability and MTBF calculations for comparisons of system reliability
- Discuss UPS topologies according to IEC and the various forms of static UPS
- Explain emergency power generation, particularly diesel powered and including fuel delivery, storage and treatment
- Understand kinetic energy UPS, DRUPS of various types and hybrid rotary
- Explain battery energy storage with emphasis on lead-acid cells, covering design, selection and sizing of UPS batteries
- Discuss alternative energy storage to batteries including kinetic energy and compressed air
- Define automatic transfer switches and static transfer switches with their application in critical power distribution systems
- Discuss short-circuits, fault-current sources and examples of source impedances and circuit protection in critical ICT systems
- Differentiate between AC power and HVDC power in the data center
- Recognize the concepts of power quality, especially harmonics in electronic loads
- Identify the particular maintenance issues of data centers and how the power system design can influence availability
- Discuss industry standards, codes and guides



5 reasons to choose our courses:

- 1** Courses aligned to international standards
- 2** Expert instructors with over 10 years experience
- 3** Interactive learning experience
- 4** Blended learning solutions (classroom and online)
- 5** Specialist career progression tracks for advanced learning

Who should attend?

Any person involved in the management of a data center/ computer room or involved in the exploration, design or build phase for a new project, including:

- IT Manager
- M&E Consultant
- HVAC Engineer
- Property Developer
- Facility Manager

Price - \$2250 | €1725 | £1425

Professional Development Hrs	21
Exam	1 hour, open book
Pre-requisites	Practical hands-on experience of a data center environment is recommended
Suggested Progression	Data Center Cooling Professional + online modules

“Everything was executed well. It shows that this group has years of experience in training”

DATA CENTER
STUDENT

Course Content

Introduction to Data Center Power Consumption

- Trends in data center design
- Reliability and resilience
- Standards, codes, bodies and regulations
- Design considerations
- Energy efficiency

Power Basics and the Utility Supply

- 3-phase currents and power transmission
- Neutral current with unbalanced and non-linear loads
- Recognize the concepts of power quality, especially harmonics in electronic loads

Dual-Cord Load Definitions and Power Distribution

- Voltage fidelity
- Immunity to supply interruption
- Load sharing and operability for concurrent maintainability

Power Architecture

- Uptime Institute
- BICSI
- TIA 942
- EN50600

Reliability, Availability, MTBF & MTTR

- Validity of comparative MTBF calculations
- Impact of short MTTR on system availability

UPS Topology, Static and Rotary

- Standby, line-interactive and on-line
- Eco-mode operation

Emergency Power Generation

- Fuel delivery and storage
- Fuel treatment

DRUPS

- DRUPS of various types of kinetic energy storage
- Hybrid rotary, including both battery and kinetic energy types

Battery Energy Storage

- Battery room design, ambient temperature control and ventilation

Alternative Energy Storage

- Kinetic energy
- Compressed air
- Ultra-capacitors
- Review the options for renewable energy sources for data center applications
- Practicalities of on-site Solar-PV

ATS and STS

