Certified Data Center Design Professional (CDCDP®)

Program Overview

Learn how to scope, plan and implement a data center design to meet the ever expanding demands of today’s modern business environment. Utilizing current best practices and applicable standards across the key data center Infrastructures.

The Certified Data Center Design Professional (CDCDP®) program is proven to be an essential certification for individuals wishing to highlight their expertise and progress their career within the data center sector.

The program has a comprehensive agenda that explores and addresses the key elements associated with designing a data center. It teaches best practice principles for the design, construction and operation of computer rooms and data center facilities. The program also addresses the requirements of a successful design to meet the business needs, incorporating the key infrastructure elements of the physical infrastructure, electrical distribution systems, air-conditioning, data cabling and building support systems. It concludes with a comprehensive case study exercise that leads learners through the design steps from initiation to commission, covering the business decisions, design scope and implementation phases that need to be addressed throughout the design configuration process.

The CDCDP® also takes into account the requirements of the current BS EN 50600 and TIA 942-B standards, industry best practice documentation and codes of conduct.

During the program learners will also have access to current standards for reference purposes.

The program will prove beneficial for professionals already working and implementing design projects within a data center facility, or those looking to move into the data center environment from IT, network, data cabling or facilities management backgrounds.

The CDCDP® program content is continually updated to reflect the current data center industry design practices and supporting technology.

"The CDCDP® program contains lots of useful information regarding US and International standards. Outstanding program and highly recommended." - DATA CENTER MANAGER
Core Unit

What is a Data Center?
- The data center Stack
- Applicable standards
- Underfloor v overhead containment
- Project charter and specification
- Energy efficient IT equipment
- Availability and resilience classifications
- Recommendations for location, size, height, floor loading, lighting and decor

Scoping the Requirement
- Identifying key stakeholders
- Market and political drivers
- National and international standards
- Availability and resilience classifications
- Introduction to availability models (Uptime Tier, TIA 942-B Rating, BICSI Classes & Syska Hennessy Critical Levels)
- Recommendations for location, size, height, floor loading, lighting and decor

Whitespace Floor
- National and international standards
- Structural and load requirements
- Recommended floor heights
- Airflow and sealing
- Ramps and access
- Seismic protection
- Slab floor construction considerations

Cabinets
- Requirements of a cabinet
- Security, safety and stabilization
- Clearance, accessibility and ventilation
- Cable management
- Seismic stability considerations
- Design specifications

Professional Unit

Power
- Regulations and codes
- The meaning of N, N+1, 2(N+1) etc.
- Power delivery and distribution losses
- Interruptible Power Supply (UPS) options
- Generator considerations
- Power distribution units
- Power distribution to, and in a rack
- Remote power Panels (RPPs)
- Emergency Power Off (EPO)
- Estimating power requirements

Cable Containment, Management & Protection
- Applicable standards
- Separation of power and data cables
- Administration and labeling
- Types of conduit, trunking, tray, etc available
- Earthing and bonding
- Containment fill ratio
- Underfloor v overhead containment
- Cable management, in and to a rack
- Fire stopping

Delivering the IT strategy
- Data center equipment
- Functions and protocols, current and future
- Data center connections
- Cabling requirements
- Cabling standards
- Cabling options
- The impact of 40G and 100G
- The impact of virtualization

Cooling
- National and international standards
- Basics of air conditioning principles
- CRACs and CRACs
- ASHRAE Operational parameters
- Under floor plenum approach
- Hot aisle/cold aisle layout principles
- Hot and cold aisle containment
- Psychrometric charts
- Min and max throw distances for under floor air
- Bypass and recirculation
- Airflow management
- Chilled water racks, CO2 free air cooling

Earth & Bending
- Applicable standards
- The terminology of earthing, grounding & bonding
- Equipto bonding
- Electrostatic Discharge (ESD)
- Functional earths
- The Signal Reference Grid (SRG)

Best Practices
- Effective & efficient
- The DC language barrier
- The multi-functional team
- Design for efficiency, operability & flexibility
- Industry recognized best practices

IT Infrastructure
- Extending the operating envelope
- Environment zones
- Accurate IT calculations
- Energy use in the IT equipment
- Software and storage considerations
- Transformation options
- Energy efficient IT equipment

Power Systems
- Energy use in the data center
- DC power train
- Matching the support to the IT load
- Transformer efficiencies
- UPS & motor efficiencies
- DCIE for modular provisioning
- Maximizing the power factor
- Measuring and monitoring
- Infrared inspections
- Planned electrical safety inspections
- Implementing data center electrical efficiency

Cooling Efficiency
- Cooling a cascade system
- Affinity laws and cooling equation
- CRAC and CRAH efficiencies
- Optimizing air-side systems & water-side systems
- DCIE for cooling options
- Diagnostic and site specific monitoring
- Design considerations

Efficiency Models & Best Practices
- Energy calculations
- Levels of modeling
- Modeling tools
- Sources of guidance
- Effective v efficient
- The DC language barrier
- The multi-functional team
- Design for efficiency, operability & flexibility
- Industry recognized best practices

Managing the Design Process
- What is to be delivered?
- What constraints are there?
- Managing dependencies
- Managing the tribes
- Change management
- Identifying risk
- Risk and issue management
- Change management
- Reporting and communication

Managing the Design Implementation Process
- Project charter and specification
- Risk assessment and management
- Scope management
- Float and critical path
- Human resource management
- Project integration and work breakdown structure
- Time and cost management
- Handover and progressive acceptance

There are a number of group discussions and individual design exercises throughout this program.

Certified Data Center Design Professional (CDCDP®) Topics

Business Challenges:
- Strategic multi-year IT strategy, including virtualization, cloud and green sustainable data center development
- Understanding and utilizing existing data center infrastructure
- Designing for energy efficiency and sustainability
- Understanding system integration
- Understanding and utilizing emerging technology

Career Challenges:
- Identifying, engaging and working with key stakeholders
- Identifying, engaging and working with key suppliers
- Reviewing and prioritizing opportunities
- Successfully delivering projects and programs

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