

€ TRAINING

Data center design and operation

A group of four smiling professionals (two men and two women) in a meeting. They are wearing white shirts. The woman in the foreground is wearing a black top and a necklace. The background is blurred, suggesting an office or meeting room setting.

13 - 17 October 2019
Casablanca (Morocco)



Data center design and operation

REF: M12402 DATE: 13 - 17 October 2019 Venue: Casablanca (Morocco) - Fee: 2500 Euro

Overview:

Learn how to scope, plan and implement a data centre design to meet the ever expanding demands of today's modern business environment. Utilising current best practices and applicable standards across the key data centre infrastructures.

The program has a comprehensive agenda that explores and addresses the key elements associated with designing a data centre. It teaches best practice principles for the design, construction and operation of computer rooms and data centre 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 centre facility, or those looking to move into the data centre environment from IT, network, data cabling or facilities management backgrounds.

Certified Data Centre Design Professional CDCDP® Topics:

Course Content:

What is a Data Centre?

- The data centre stack.
- Types of data centre.

The Design Planning Process:

- Main design considerations.
- Developing a project plan.

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, heights, 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 stabilisation.
- Clearance, accessibility and ventilation.
- Cable management.
- Seismic stability considerations.
- Design specifications.

Power:

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

Cooling:

- National and International standards.
- Basics of air conditioning principles.
- CRAHs and CRACsuASHRAE operational parameters.
- Under floor plenum approachuHot aisle/cold aisle layout principles.
- Hot and cold aisle containment.
- Psychrometric charts.
- Min and max throw distances for under floor air.
- Bypass and recirculationuAirflow management.
- Chilled water racks, CO2, free air cooling.

Earthing & Bonding:

- Applicable standards.
- The terminology of earthing, grounding & bonding.
- Equipotential bonding.
- Electrostatic Discharge ESD.
- Functional earths.
- The Signal Reference Grid SRG.

Cable Containment, Management & Protection:

- Applicable standards.
- Separation of power and data cables.
- Administration and labelling.
- 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 centre equipment.
- Functions and protocols, current and future.
- Data centre connections.
- Cabling requirements.
- Cabling standards.
- Cabling options.
- The impact of 40G and 100G.
- The impact of virtualisation.

Copper and Optical Fibre Cabling Connectivity:

- Cabling standards.
- Cable standards, 10GBASE-T, CAT6A, Cat 7A & Cat 8.
- Screened vs unshielded cables.
- High density patching and Alien crosstalk.
- Copper test requirements.
- Design for growth management.
- Channel connections.
- Connection topologies.
- Optical connectors, past and present.
- Optical fibre management
- Types of optical cable.
- Advantages/disadvantages of pre-terminating cables.
- Optical component loss and link power budgets.
- Application link loss.
- Optical testing requirements.
- Pre-terminated cabling.

Safety and Manageability:

- Local codes and regulations.
- Fire safety plan.
- ASD and detection systems.
- Fire suppression systems.
- Fire safety cable requirements.
- Security and access control.



Commission and Handover:

- Benefits of commissioning.
- Commission process and test sequence.
- Handover process and training.
- Lessons learned.