

**Module Title : CDCP : Certified Data Centre Professional**

**Duration : 2 days**

## Course Description

With few exceptions, enterprises today rely on IT for the delivery of business-critical services - often directly to the end consumer. It is therefore vital that the mission-critical data centre is designed, maintained and operated with high-availability and efficiency in mind. However, the fact is most data centres do not meet the full availability, capacity, safety or efficiency requirements that are often demanded. The ever-changing technologies places even greater pressure on data centre managers along with the faster pace at which these changes are required.

The CDCP® course is a 2-day course. It designed to expose participants to the key components of the data centre. It will address how to setup and improve key aspects such as power, cooling, security, cabling, safety, etc, to ensure a high-available data centre.

## Audience

The primary audience for this course is any IT, facilities or data centre professional who works in and around the data centre and who has the responsibility to achieve and improve the availability and manageability of the data centre.

## Prerequisites

There is no specific prerequisite for the CDCP® course. However, participants who already have at least one or two years' experience in a data centre or facilities environment may be best suited. Those with no experience just yet are most welcome to participate.

## Course Benefits

After completion of the course the participant will be able to:

- Choose an optimum site for mission-critical data centre based on current and future needs
- Describe all components that are important for high availability in a data centre and how to effectively setup the data centre
- Name and apply the various industry standards
- Describe the various technologies for UPS, -re suppression, cooling, monitoring systems, cabling standards, etc, and to select and apply them effectively to cost-effeciently enhance the high-availability of the data centre.
- Review the electrical distribution system to avoid costly downtime

- Enhance cooling capabilities and efficiency in the data centre by using existing and new techniques and technologies for the increased cooling requirements of the future
- Design a highly reliable and scalable network architecture and learn how to ensure installers apply proper testing techniques
- Setup effective data centre monitoring ensuring the right people get the right message
- Ensure proper security measures, both procedural and technical, are established to safeguard your company's valuable information in the data centre
- Select equipment racks and components suitable for ICT equipment and its cooling requirements
- Select the correct light levels for the various areas of the data centre.
- Select appropriate fire safety/protection controls to detect and suppress potential fire.

## Course Outline

### Day 1

#### 9am-10:15am

- **The Data Centre, it's Importance and Causes for Downtime**
- **Data Centre Standards and Best Practices**
- **Data Centre Location, Building and Construction**
  - Selecting appropriate sites and buildings and how to avoid pitfalls
  - Various components of an effective data centre and supporting facilities setup

#### 10:15am-10:30am Morning Teabreak

#### 10:30am-12:30pm

- **Raised Floor/Suspended Ceiling**
  - Uniform, concentrated and rolling load definitions
  - Applicable standards
  - Raised Floor guidelines
  - Signal Reference Grid, grounding of racks
  - Disability act and regulations
  - Suspended ceiling usage and requirements
- **Light**
  - Standards
  - Light fixture types and placement
  - Emergency lighting, Emergency Power Supply (EPS)
- **Power Infrastructure**

- Power infrastructure layout from generation to rack level
- ATS and STS systems
- Redundancy levels and techniques
- Three-phase and single-phase usage
- Power distribution options within the computer room
- Power cabling versus bus bar trunking
- Bonding versus grounding
- Common Mode Noise and isolation transformers
- Distribution boards, form factors and IP-protection grades
- Power quality guidelines
- Real power versus apparent power
- How to size and calculate load in the data centre
- Generators
- Static and dynamic UPS systems, selection criteria, how they operate and energy efficiency option
- Battery types, correct selection and testing
- Thermo-graphics
- Renewable Energy Factor (REF)

**12:30pm-1:30pm Lunch**

**1:30pm-3:15pm**

- **Electro Magnetic Fields**

- Electrical fields and magnetic fields definitions and units of measurements
- Sources of EMF
- Effects of EMF on human health and equipment
- (H)EMP
- Standards
- EMF shielding solutions

- **Equipment Racks**

- Rack standards, properties and selection criteria
- Security considerations
- Power rail/strip options

**3:15pm-3:30pm Afternoon Teabreak**

**3:30pm-5:00pm**

- **Cooling Infrastructure**

- Temperature and humidity recommendations

- Cooling measurement units and conversion rates
- Sensible and latent heat definitions
- Differences between comfort and precision cooling
- Overview of different air conditioner technologies
- Raised floor versus non-raised floor cooling
- Placement of air conditioner units and limitations to be observed
- Supplemental cooling options
- Cold aisle/hot aisle containment
- Liquid immersion cooling
- Cooling concepts: Seasonal Thermal Energy Storage (STER)

## Day 2

9am-10:15am

- **Water Supply**

- Importance of water supply and application areas
- Backup water supply techniques

10:15am-10:30am Morning Teabreak

10:30am-12:30pm

- **Designing a Scalable Network Infrastructure**

- The importance of a Structured Cabling System
- Planning considerations
- Copper and Fiber cable technology and standards
- ANSI/TIA-942 Cabling hierarchy and recommendations
- Testing and verification
- Network redundancy
- Building-to-building connectivity
- Network monitoring system requirements

- **Fire Safety/Protection**

- Standards for fire suppression
- Detection systems
- Various total flooding fire suppression techniques and systems, their benefits and disadvantages
- Handheld extinguishers
- Signage and safety
- Regulatory requirements and best practices

**12:30pm-1:30pm Lunch**

**1:30pm-3:15pm**

- **Physical Security and Safety**
  - Physical security considerations
  - Physical safety considerations
- **Auxiliary Systems**
  - Data centre monitoring requirements
  - EMS, BMS and DCIM
  - Water leak detection systems
  - Alarm notification

**3:15pm-3:30pm Afternoon Teabreak**

**3:30pm-5:00pm**

- **EXAM: Certified Data Centre Professional**

## Examination

The exam is a 60-minute closed book exam, with 40 multiple-choice questions. The candidate requires a minimum of 27 correct answers to pass the exam.

## Certification

Candidates who successfully pass the exam will receive the official 'Certified Data Centre Professional' certificate. The certification is valid for three years after which the student needs to re-certify.