

Module Title : Course CTDC : Certified TIA-942 Design Consultant
Duration : 3 days

Course Description

Data centres are at the core of many organisations. Downtime of the data centre could lead to major losses to the business. This has led many organisations to build resilience at various levels such as at the data centre facilities infrastructure and at the ICT layer. However, following recommendations of various vendors, consultants and public domain information might result in under- or over-specification. Therefore it would be better to follow a commonly accepted standard as the basis for the design and built principles.

The ANSI/TIA-942 Standard specifies requirements and guidelines for the design and build of a data centre. It is intended for use by designers who need a comprehensive understanding of the data centre design encompassing Architecture, Mechanical, Electrical and Telecom requirements and guidelines, not always covered by other generic guidelines and so called “standards”.

Understanding the intent of the ANSI/TIA-942 standard is of fundamental importance, not only for the successful implementation of the data centre, but also for its sustainable operations. In this three-day course, the participant will learn how to design an ANSI/TIA-942 compliant data centre. It will provide a clear understanding of the requirements of the ANSI/TIA-942 Standard and possible implementation variations.

The course is well suited for all types of data centres, be it enterprise data centres or multi-tenant, third party data centres such as co-location, managed services and cloud service providers.

Audience

The primary audience for this course are professionals involved with designing, building, maintaining and operating mission critical data centres and those who wish to attend the CTIA® (Certified TIA-942 Internal Auditor) course.

Prerequisites

Participants must possess a valid data centre training certificate such as CDCP® or any other approved equivalent. Please submit a copy of your certificate for verification upon registration for the CTDC® course.

At Course Completion

After completing this course, you will be able to:

- Learn to properly comprehend and apply the ANSI/TIA-942 Standard requirements and guidelines
- Understand the proper intent of the Standard to avoid both over- and/or under investment
- Align Tier level selection and infrastructure investments to the business requirements
- Understand the criteria and requirements for a high availability data centre design and how to effectively establish the data centre from the perspective of the Standard
- Understand how the ANSI/TIA-942 standard relates to various worldwide standards.

Course Outline

Introduction to Data Centre facilities

About the ANSI/TIA-942

- Life of the Standard
- Relation to other standards
 - Architectural
 - Electrical
 - Mechanical
 - Telecommunication
- Areas under scope
- High level Tier definitions
- Redundancy options (N, N+1 etc.)
- Fault tolerant
- Concurrent maintainability
- Compartmentalization
- Example Tier-1
- Example Tier-2
- Example Tier-3
- Example Tier-4

Data Centre Space Planning

Data Centre Topologies

Recommendations for Energy E-ciency

Architectural

- Site selection
- Parking
- Multi-tenant building
- Building construction
 - Roofing
 - Floor loading
 - Raised flooring
 - Suspended/drop ceiling
 - Hanging load
 - Seismic

Fire Resistive Requirements

- Vapor barrier

Building and Room Access

- Security checkpoints
- Entry lobby
- Doors
- Windows
- Exit corridors
- Shipping and receiving areas

Computer Room

- Racks
- Rack setup

Administrative Offices

Security Office

Operations Centre

Restroom and Break Room

UPS/Battery Rooms

Generator and Fuel Storage Area

Security

- CCTV
- Staffing
- Bullet/ballistic proofing

Lighting

Safety

- Signage

Electrical

- Utility power
 - Substation
 - Feed requirements
 - Self-generation
- HT/HV switch gear
- Generator and fuel supply
- LT/LV switch gear
 - ATS
 - Alternatives to ATS
- UPS and batteries
- PDU
- STS
- Grounding
- Surge protection

- EPO
- Central power monitoring
- Load Banks
- Testing
- Equipment maintenance
 - Preventive maintenance
 - Facility training programs

Mechanical

- Environmental design
 - Temperature and humidity requirements as per
 - ASHRAE TC9.9
 - Pressure
 - Air flow
 - Fresh air intake
 - ACH/ventilation
 - Over pressurization
 - Contamination
 - Scrubbing
 - Radio sources
 - Vibration
 - Water infiltration
- Water cooled systems
 - Heat rejection
 - Chilled water system
 - Make up water
- Air cooled systems
 - HVAC control systems
 - Plumbing
 - Fuel oil system
- Plumbing
 - Pipe routing
- Fire suppression
- Water leak detection

Telecommunications

- Recognized media
- Cable routing and pathways
- Connectors
- Labelling & documentation
- Addendum data centre fabrics

Exam

- Sample questions
- Self study (time permitted)
- Exam: Certified TIA-942 Design Consultant