CTDC®

epi® Protecting your interests

CERTIFIED TIA-942 DESIGN CONSULTANT

Introduction

Data centres are at the core of many organisations. Downtime of the data centre could lead to major losses to the business. As a result, many organisations establish resilience at various levels such as the data centre facilities infrastructure and at the ICT layer. However, following the recommendations from various vendors, consultants and the 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 build 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. It encompasses Architecture, Mechanical, Electrical and Telecom requirements and guidelines, which are 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.

Roadmap

- CTLA® Certified TIA-942 Lead Auditor
- CTIA® Certified TIA-942 Internal Auditor
- CTDC® Certified TIA-942 Design Consultant
- CDCP® or other approved courses*

*Contact your local partner to check on approved courses

Audience

The primary audience for this course is any professional involved in 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.

ANSI/TIA-942 Standard

Participants will receive the latest ANSI/TIA-942 standard, digital version. This is a single-user-license document which the participant can access anytime on his/her computing device and can be printed (once). Extensive reference is made to the ANSI/TIA-942 Standard during the training. Therefore participants are required to bring his/her computing device along for the training. For more information on the standard, please refer to www.tiaonline.org.

Global Accreditation & Recognition

World-wide accredited by EXIN

Course Benefits

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

- ☑ Learn to properly comprehend and apply the ANSI/TIA-942 Standard requirements and guidelines
- ☑ Understand the proper intent of the ANSI/TIA-942 Standard to avoid both over- and/or under-investment
- ☑ Align the selection of redundancy levels 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 ANSI/TIA-942 Standard
- ☑ Understand how the ANSI/TIA-942 Standard relates to various worldwide standards

PROUD TO BE A TIA® MEMBER

Course Syllabus

- **Introduction to Data Centre Facilities**
- **About the ANSI/TIA-942**
  - Life of the ANSI/TIA-942 Standard
  - Relation to other standards
    - Architectural
    - Electrical
    - Mechanical
    - Telecommunication
  - Areas under scope
  - High level redundancy definitions
  - Redundancy options (N, N+1 etc.)
  - Fault tolerant
  - Concurrent maintainability
  - Compartmentalisation
  - Examples of redundancy levels
- **Data Centre Space Planning**
- **Data Centre Topologies**
- **Recommendations for Energy Efficiency**
- **Architectural**
  - Site selection
  - Parking
  - Multi-tenant building
  - Building construction
    - Vapor barrier
    - Roofing
    - Floor loading
    - Raised flooring
    - Suspended/drop ceiling
    - Hanging load
    - Seismic
- **Building Security & Safety**
  - Security
  - CCTV
  - Staffing
  - Bullet/ballistic proofing
  - Lighting
  - Safety
    - Signage
- **Building and Room Access**
  - Security checkpoints
  - Entry lobby
  - Doors and windows
  - Exit corridors
  - Shipping and receiving areas
- **Room/Area Design Requirements**
  - Administrative offices
  - Security office
  - Operations centre
  - Restroom and break room
  - UPS/Battery rooms
  - Generator and fuel storage area
  - Computer room
- **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
    - Contamination
      - Sources
      - Clean air
    - Pressurisation
    - Radio sources
    - Vibration
    - Water ingress
  - Water cooled systems
    - Heat rejection
    - Chilled water system
    - Condenser water
    - Make up water
  - Air cooled systems
  - HVAC control systems
  - Plumbing
    - Pipe routing
  - Fire suppression
  - Water leak detection
- **Telecommunications**
  - Network topology
  - Redundancy level design
  - Media and connectors
  - Cabling pathways
  - Detailed cabling design considerations
  - Administration and labeling
  - Cable testing
  - Data centre fabrics
- **Micro Edge Data Centre**
  - Type definitions
  - Rating requirements
  - Testing and maintenance
- **Immersion Cooling**
  - Cabling considerations
  - Rating requirements
- **Exam**
  - Exam: Certified TIA-942 Design Consultant

Delivery Structure and Methods

The CTDC® course is lectured by an EPI Certified Instructor using a combination of lectures and question-and-answer sessions to discuss participants' specific needs and challenges experienced in their own data centre environments. Participants are able to tap into the extensive experience of the trainer enabling them to validate and improve their own environments thus adding tremendous business value. The CTDC® course is approximately 80% lecture and 20% hands-on.

CTDC® course is available in the following delivery methods:

- ILT – Instructor Led Training
- VILT – Virtual ILT

The classes are available on public schedule as well as private group training.

Examination

The exam is a 90-minute closed book exam, with 60 multiple-choice questions. The candidate requires a minimum of 50 correct answers to pass the exam.

Certification

Candidates who successfully pass the exam will receive the official 'Certified TIA-942 Design Consultant' certificate. The CTDC® certificate is issued for the ANSI/TIA-942 version current at the time, which the candidate tested for. The certificate itself does not expire and stays relevant only for the stated ANSI/TIA-942 version.

Global Accreditation & Recognition

The CTDC® course is accredited by EXIN, which is a global, independent and not-for-profit accreditation and examination provider. EXIN's mission is to improve the quality of the IT and data centre sectors, the proficiency of IT and data centre professionals and the IT users, by means of accreditation of course material as well as independent examination and certification.

The ANSI/TIA-942 Standard was created as a voluntary consensus standard by the TIA TR-42 Engineering Committee.

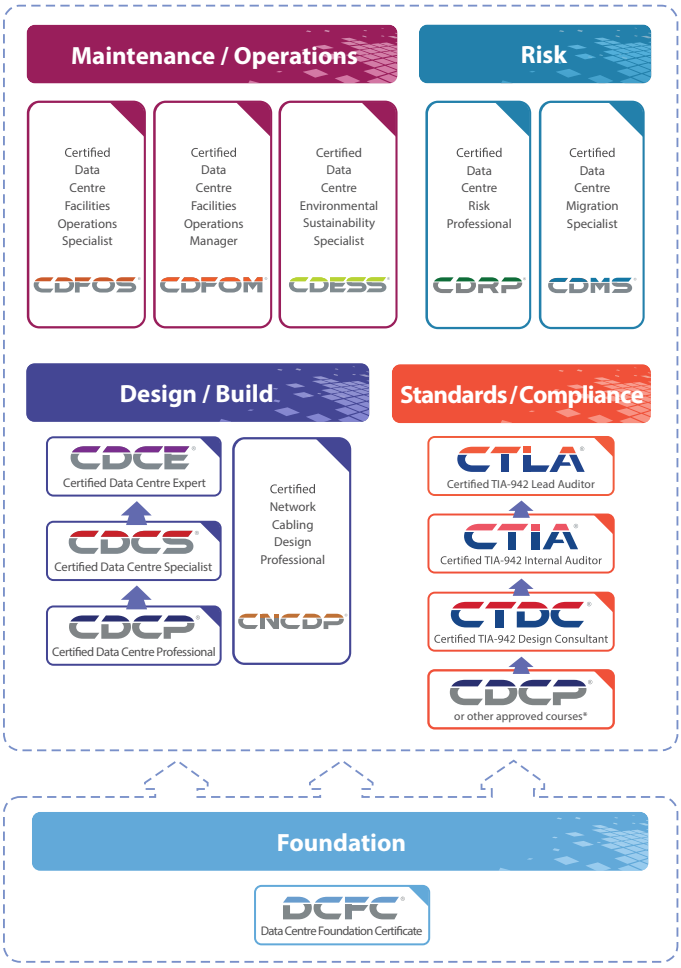
Neither TIA or the committee are in any way responsible for other documents used in this training and certification program.

Course Schedule

Our courses are available in over 60 countries across all continents. For a comprehensive course schedule, visit the EPI corporate website at www.epi-ap.com or contact your local authorised reseller/partner.

EPI Data Centre Training Framework©

The **EPI Data Centre Training Framework©** provides a structured course curriculum for individuals working in and around data centre facilities and data centre operational management. It addresses the various disciplines required to design and manage a high-availability, efficient data centre. EPI's data centre course curriculum is not only the first in the world, it is also by far the largest in the industry. Many companies have specified these courses as prerequisites for their staff working in and around the data centre and use them as part of their career planning initiatives. Recognised globally, these certifications add value to both companies and individuals.



The Company

EPI is a data centre specialist company of European origin operating world-wide in over 60 countries through direct operations and a large partner network. EPI offers an extensive range of data centre services on auditing, certification and training. EPI's focus is on mission-critical, high-availability environments. Established in 1987, EPI has developed an international reputation for delivering high quality technical expertise, with flexible and innovative services, techniques and methodologies.

All our services are aimed at helping our customers to:

- Increase **Availability** of their mission-critical infrastructure
- Improve **Efficiency**, **Effectiveness** and **Manageability**
- **Minimise risk** of business interruption

Our Clients share a common need to protect their valuable data, run their mission-critical infrastructure efficiently and to be protected on a 24 x 7 basis. By protecting the interests of our customers, EPI is committed to an intensive program of comprehensive services development backed by engineering and support excellence.

Quality Systems and Procedures have always been at the heart of every stage of our service delivery to ensure consistent and high quality services. We are known for our thoroughness, flexibility and responsiveness. We focus on providing servicess that fit each organisation and each project with a drive to deliver quality on time, every time.

Let us put our expertise to work for you!

Data Centre Services

Audit & Certification

• Data Centre Standards
- ANSI/TIA-942
- DCOS®
- EN 50600
- ISO/IEC TS 22237

• Other International Standards
- ISO 9001
- ISO 14001
- ISO 14644
- ISO/IEC 20000-1
- ISO 22301
- ISO/IEC 27001
- ISO/IEC 27701
- ISO 37001
- ISO 45001
- ISO 46001
- ISO 50001
- PCI DSS

• Singapore Standards
- SS 507
- SS 564
- SS 584
- DTPM
- CBPR
- PRP

Professional Training & Certifications

- Data Centre
  DCFC®, CDCP®, CDCS®, CDCE®, CNCDP®
  CDFOS®, CDFOM®, CDESS®, CDRP®, CDMS®,
  CTDC®, CTIA®, CTLA®

- IT
  CITO®, CITM®, CITD®

Non-Certification Training

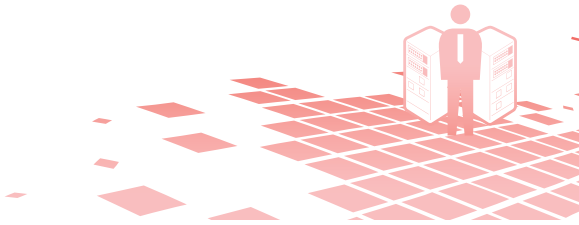
- Digital Transformation

Frameworks

- IT&DCF© - IT & Data Centre Framework
- DCCF® - Data Centre Competence Framework
- DCTF© - Data Centre Training Framework
- ITTF - IT Training Framework

Standard

- DCOS® - Data Centre Operations Standard
- MDCS - Modular Data Centre Standard
- SCMDCS - Self-Contained Modular Data Centre Standard
- CRUR® - Computer Room Utilisation Ratio



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Authorised Reseller/Partner:

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