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CNCDP®

epi® Protecting your interests

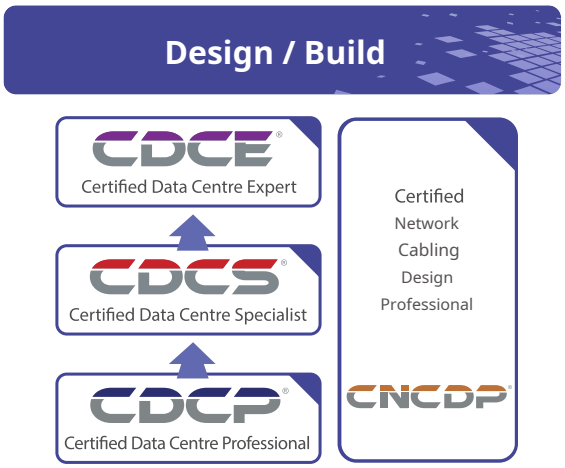
CERTIFIED NETWORK CABLING DESIGN PROFESSIONAL

Introduction

With few exceptions, today's enterprises rely on IT in their business for the delivery of critical services, often directly to the end consumer. Therefore, it is vital that the mission-critical data center is designed, maintained, and operated with high availability and efficiency. Among all the facilities, network cabling is one of the major contributors to data center availability.

CNCDP® is a 2-day course designed to provide participants with in-depth knowledge in the design and installation of data network cabling systems that includes key topics such as; technical standards, design of different cabling subsystems, calculation of material requirements, architecture, installation, testing and acceptance.

Roadmap



Audience

This course is aimed at IT professionals working in Facilities or Data Centers, Consultants and/or those working in the design, implementation and operation of network cabling systems.

Global Accreditation & Recognition

World-wide accredited by EXIN

Requirements

There is no specific prerequisite for the CNCDP® course. However, participants who already have at least one to two years of experience in an IT, data center, or facilities environment may be best suited. Those who do not yet have experience are welcome to participate.

Benefits of the Course

After completing the course, the participant will be able to:

- Understand the various standards for network cabling systems, models, and how to apply them to network design.
- Design a wiring and user connection system for commercial buildings.
- Design the cabling and network connection system for data centers.
- Design trunk connections for indoor and outdoor wiring.
- Select appropriate cabling routes for network installations.
- Apply correct installation practices and avoid common mistakes.
- Define the appropriate criteria and test methods for copper and fiber systems.

Content

- **Introduction to Structured Cabling System (SCS)**
  - Brief history of SCS
  - Basic copper and fiber transmission
  - Copper and fiber cabling
  - Single-mode and multimode fiber
  - Step index multimode fiber
  - Difference between commercial cabling and data center cabling
  - Development of standards
  - Role of standards
  - ANSI/TIA 568 standard
  - Common standards
  - The use of wiring for smart buildings
- **Horizontal Cabling and Commercial Building Management**
  - Standard Diagram Summary: ANSI/TIA-568
  - Functional elements and example
  - Scenario A: Determine the number of work areas
  - Scenario B: Determine the number of user locations
  - Zone wiring
  - Administration: Interconnection and cross-connect
  - Flat panels and angled panels
  - Creation of Wiring Schematic Design
  - Conversion of Schematic to Physical Design
  - Bill of Materials Calculation
- **Horizontal Cabling and Data Center Management**
  - Standard Diagram Summary: TIA-942
  - Basic/Reduced/Typical Data Center Configuration
  - Traditional 3-layer net design / Spine and Leaf design
  - Select termination hardware
  - Administration design
  - ToR / EoR / Spine & Leaf wiring design
  - Network cabling redundancy
  - Create a wiring schematic design for ToR/EoR
  - Patch Panel/Rack Layout Conversion
  - Bill of Materials calculation for ToR/EoR
- **Building Backbone - Commercial Building**
  - Backbone Wiring Diagram
  - Calculation of copper backbone cabling requirements per telecommunications room (TR)
  - Calculation of the requirements for fiber backbone cabling per telecommunications room
  - Building Backbone Cabling Requirements Summary
  - Recognized trunk wiring
  - Backbone Patch Panels
  - Maximum distances of backbone cabling
  - Creation of wiring schematic design
  - Converting schematic design into patch panel/rack design
- **Building Trunk Cabling - Data Center**
  - TIA-942 based backbone topology
  - TIA-942 Backbone Requirements
  - Main cable recognized
  - ToR / EoR / Spine and Leaf
  - Backbone distance estimation
  - Strength of trunk cable routes
  - Creating a wiring schematic design
  - Conversion of patch panel schematic layout
  - Field termination and fusion for fiber connectors
  - Pre-terminated copper cables and fiber trunks
- **Architectural Considerations**
  - ANSI/TIA569-D Wiring Routes and Spaces
  - Common requirements for rooms
  - Definition of rooms
  - Entrance / Demarcation Room
  - Roof and floor route
  - Cable trays / basket / ladder / conduit
  - Duct/sleeve/inner groove
  - Calculating the size of the route
  - Best practices with cables
  - Cable Management / AIM
  - Grounding and Bonding
  - Separation distance requirements for copper wiring to power wiring
  - Fire stopping barrier
  - Fire resistant barrier
  - Fire Resistant Cable Cover
- **Campus / Aerial Cabling (Backbone)**
  - Basic Installation of Campus Backbone Cabling and Cable Types; Aerial/Direct Underground/Underground Conduit
  - Planning the installation of external cables
  - Lightning / Surge Protection
  - Approved Ground for Surge Protector
  - Creating a schematic diagram
  - Convert Plan Design to Patch Panel Design
- **Site Inspection and Testing**
  - Visual site inspection notes
  - Common installation problems
  - Copper cable test standard
  - Link/Channel/Patch Cable/MPTL Test Setup
  - Fiber connectors
  - Fiber Test Standard - Tier 1 and 2 Certification
  - Definition of fiber link
  - Fiber test steps
  - Inspection and cleaning of fibers
  - Calibration of test equipment
  - 3 Methods - Setting up the chuck for testing
  - Calculation of fiber loss budget
  - Flexure Insensitive Fiber - ITU-G.657
  - Optical Time Domain Reflectometer (OTDR)
- **EXAMIN:Certified Network Cabling Design Professional**

Delivery Structure and Methods

The CNCDP® course is delivered by an EPI-certified trainer, using a combination of lectures and Q&A sessions to discuss participants' specific needs and the challenges experienced in their own AA environments. Participants can draw on the trainer's extensive experience, allowing them to validate and improve their own environments, adding tremendous business value. The CNCDP® course is available in the following delivery methods:

- ILT – Instructor-Led Training
- VILT – Virtual ILT
- TOD – Training on Demand

Exam

The exam is a closed book exam lasting 60 minutes, with 40 multiple choice questions. The participant requires a minimum of 27 correct answers to pass the exam.

Certification

Participants who pass the exam will receive the official 'Certified Network Cabling Design Professional' certificate. This certification is valid for three years, after which the student must recertify.

Global Accreditation & Recognition

The CNCDP® course is accredited by EXIN, which is a global, non-profit, independent accreditation institute. EXIN's mission is to improve the quality of the IT and data center sectors, the competence of IT professionals and users, through accreditation of course material, as well as independent examination and certification.

Next Recommended Course

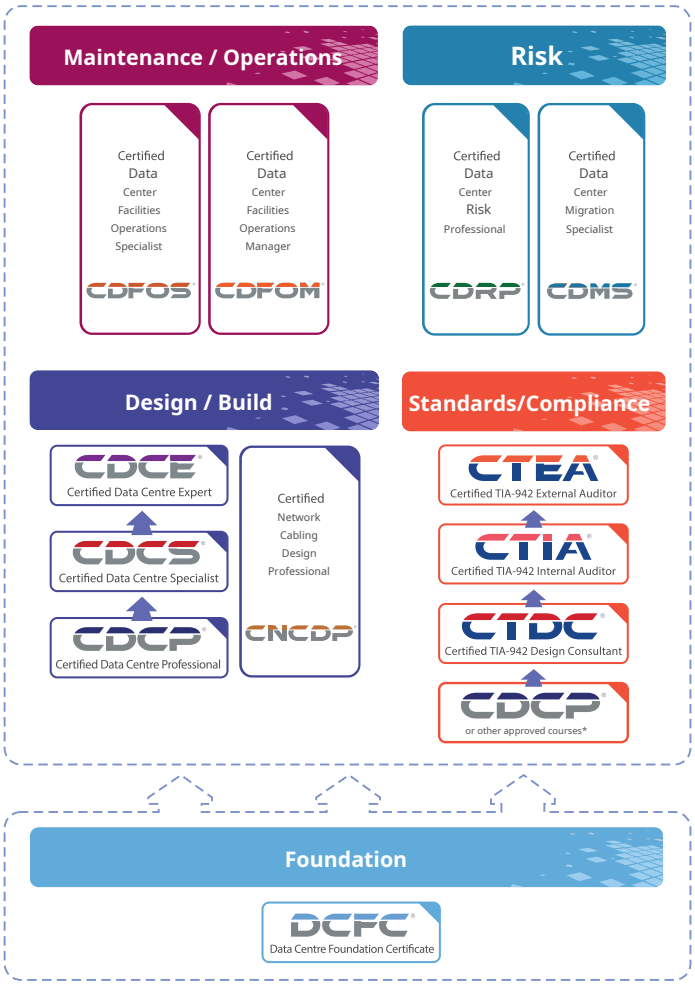
To further expand your skills, we recommend CDCP® training. CDCP® exposes participants to key components of data center design and design improvements.

Course Program

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

EPI Data Center Training Framework ©

He**EPI Data Center Training Framework**©EPI provides a structured course plan for people working in data center facilities and their operational management. It addresses the various disciplines required to design and manage an efficient and highly available data center. This course plan developed by EPI is not only the first in the world, but is the largest in the industry. Many companies have selected these courses as prerequisites for hiring their staff and use them as part of their career plan initiatives. Recognized worldwide, these certifications add value to both companies and individuals.



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The Company

EPI is a European company operating worldwide in over 60 countries through direct operations and a large network of partners. EPI offers a wide range of Data Center Consulting, Auditing, Certification and Training services. EPI's focus is on High Availability and Mission Critical environments. Established in 1987, EPI has developed an international reputation for providing high quality technical expertise, with flexible and innovative solutions, techniques and methodologies.

All our services are aimed at helping our clients to:

- Increase the**Availability**of its mission-critical infrastructure.
- Improve the**Efficiency**, the**Effectiveness**and the**Ability**of
- administration. **Minimize**the risk of business interruption.

Our customers share a common need to protect their valuable data, run their mission-critical infrastructure efficiently, and to be protected 24/7. In protecting our customers' interests, EPI is committed to an intensive program of comprehensive service 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, high quality services. We are known for our thoroughness, flexibility and responsiveness in our project management. We focus on providing solutions that are tailored to 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 Center Services

Audit and Certification

• Data Centre Standards
- ANSI/TIA-942
- DCOS®

• International Standards
- ISO 9001
- ISO 14001
- ISO 14644
- ISO/IE 20000-1
- ISO 22237
- ISO 22301
- ISO 27001
- ISO 37001
- ISO 45001
- ISO 50001

• Singapore Standards
- SS 506
- SS 507
- SS 564

• European Standards
- ISO/IEC TS 22237

Certifications and Professional Training

- Data Center
DCFC®, CDCP®, CDCS®, CDCE®, CDFOS®, CDFOM®, CDRP®, CDMS®, CTDC®, CTIA®, CTEA®

- ITEM
CITO®, CITM®, CITD®

Training without Certification

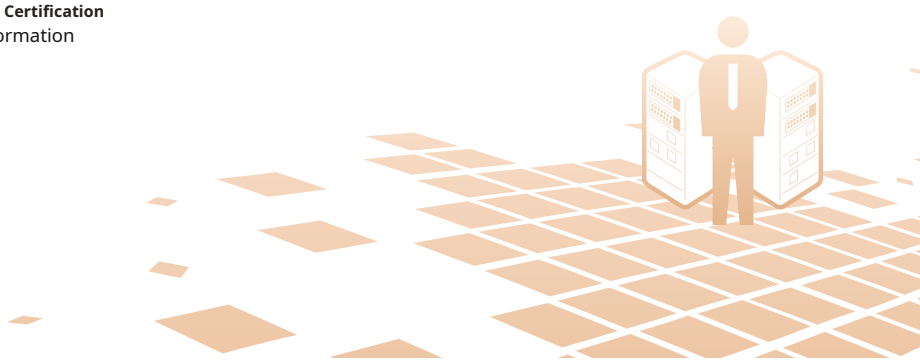
- Digital Transformation

Frameworks

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

Standard

- DCOS® - Data Center Operations Standard



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