

CERTIFIED DATA CENTRE ASSOCIATE

DURATION	LEVEL	TECHNOLOGY	DELIVERY METHOD	TRAINING CREDITS
5 Days	Intermediate	EPI	Instructor-led	NA

INTRODUCTION

From the apps on mobile devices and computers to online shopping, streaming platforms, cloud storage, and even everyday banking - every digital activity is powered by data centers, the backbone of the modern world. Global demand for data storage and processing is doubling at record speed, with new data center facilities being built across every region in the world. This rapid expansion is fueling huge opportunities for skilled professionals. Careers in data centers and their supporting industries are not only exciting but also among the most future-proof in today's digital world. Designed for higher education students, the Certified Data Centre Associate (CDCA®) program equips students with essential knowledge about data centers, their components and operations. These skills open doors across the entire digital economy, from data center and IT to mechanical and electrical (M&E) engineering, cybersecurity, sustainability, and more. With CDCA®, students enhance their career opportunities with global technology companies, data centers, cloud providers, IT solution providers, equipment designers/manufacturers, consulting firms, and outsourced service providers.

AUDIENCE PROFILE

The primary audience is students in higher education institutions pursuing IT or engineering studies.

PREREQUISITES

There is no specific prerequisite for the CDCA® course other than a desire to learn.

COURSE OBJECTIVES

After completing this course, students will be able to:

- Understand the Big Picture: Explore the history, business importance, and future sustainability challenges of data centers.
- Know the Types: Learn the difference between colocation, enterprise, cloud, edge and hyperscale facilities.
- Master Site Selection: Understand the criteria for data center site selection.
- Apply Global Standards: Understand international standards and topologies that define quality and reliability.
- Explore Core Infrastructure: Gain knowledge on infrastructures from architecture to power, cooling, ICT, fire protection, monitoring, safety and security.
- Understand the Interdisciplinary Nature: Learn how multiple disciplines work together to manage, operate and maintain data centers.
- Focus on Sustainability: Understand the environmental impact of data centers and how renewable energy and efficiency metrics like PUE, WUE, CUE shape the industry.
- Plan Your Career: Discover career pathways in design/build, operations, governance, or standards and compliance

COURSE CONTENT

1. Introduction to Data Centers

- History of Data Centers

2. The Data Centre and Its Relation to Business

- Business organization
- Importance of a data center
- Elements of data center
- Causes of unavailability

3. Data Centre Facilities areas

- Listing of all areas and their function

4. Data Centre Support Systems

- Listing of all key components and their function

5. Components of the Architectural Infrastructure

- Walls
- Windows
- Doors
- Roof
- (Raised) Floor
- (Suspended) Ceiling

6. Components of the Power Infrastructure

- Utility power
- Microgrid
- Transformers
- Generators
- Fuel systems
- ATS
- UPS systems
- Batteries
- Electrical switch gear
- Cabling/busbar systems
- Power rails/strips

7. Lights

- Lights
- Emergency lighting

8. Components of the Cooling Infrastructure

- Chillers
- DX Systems
- Evaporators
- Make up water
- Chemical dosing
- CRAC/CRAU/HVAC
- Liquid Cooling
- STER – Seasonal Thermal

9. Energy Storage

- Raised floor
- Non-raised floor
- Containment

10 Components of the ICT/Network Infrastructure

- Racks
- Equipment mounting
- Typical data center equipment
- Servers, mainframes, high performance super computers
- Firewalls and security appliances
- Storage equipment (SAN, NAS, DLT etc.)
- Networking equipment (load balancers, routers, switches, gateways)
- Networking elements (MAN, WAN, LAN)
- Networking protocols
- Network cabling (fiber, copper)
- Cable trays and pathways
- TIA 606B labelling

11. Definition of Different Types of Data centres

- Enterprise data centre
- Commercial/Cofco data centre
- Wholesale
- Cloud data centre
- Edge data centre
- Hyperscale

12. Data Centre Standards

- Standards and guidelines
- International vs. national standards
- List of standards
- Rating definitions

13 AI Infrastructure Design Requirements

- Power infrastructure design considerations
- Cooling infrastructure design considerations
- Network infrastructure design considerations

14. Components of Fire Suppression

- Detection systems
- Water Based Suppression Systems
- Gaseous Based Suppression Systems
- Fire Prevention systems
- Fire extinguishers
- Fire Safety

15. Safety

- Safety requirements
- Signage

16. Data Centre Monitoring Systems

- Environmental Monitoring System (EMS)
- Building Management System (BMS)
- Data Centre Infrastructure Management (DCIM)
- Liquid leak detection
- Notification Systems

17. Components of Security Infrastructure

- Perimeter security
- Physical protection
- Access control
- CCTV/VSS

18. Data Centre Operations

- Operations team
- Duties of operations team
- Asset management
- Facilities Maintenance
- Floor management
- Monitoring and reporting
- Vendor management
- Security management
- Safety & Crisis management
- Document management

19. Topology Designs

- Example of ratings levels
- Concurrent Maintainability
- Fault Tolerant

20. Data Centre Site Selection

- Criteria for selecting the data center location
- Criteria for facility

21. Impact of Data Centers on the Environment

- Predictions in 2010
- Current situation
- Outlook and commitments

22. Environmental Sustainability

- Environmental sustainability framework (ISO 14001)
- Standards and guidelines – ISO 50001 / ISO 30134
- The three scopes for GHG emissions
- Measurement and categories
- Baselining
- Trend analysis
- Reporting

23. Key Metrics

- PUE - Power Usage Effectiveness
- WUE - Water Usage effectiveness
- CUE - Carbon Usage effectiveness
- REF - Renewable Energy Factor

24. Waste Management

- Life-cycle assessment
- 3 R's for waste management

25. Sustainable Energy Usage

- Sustainable energy sources
- Power purchase agreements
- Energy attribute certificates
- Renewable Energy Factor (REF)
- Matching renewable energy supply and demand
- Sustainable energy storage
- Carbon trading

ASSOCIATED CERTIFICATIONS & EXAM

EXAM: Certified Data Centre Associate