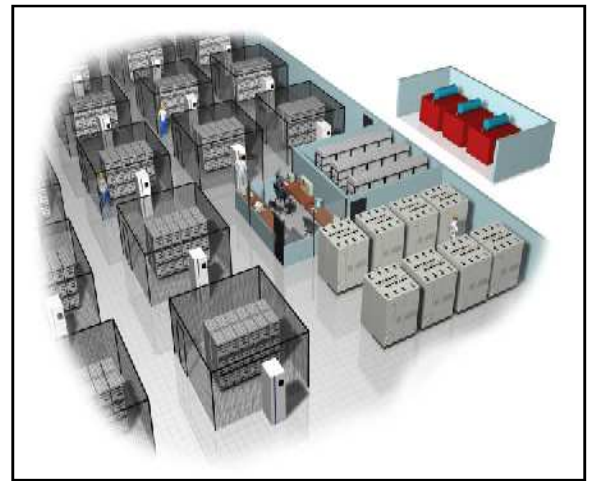




# Certified Data Centre Expert



## Introduction

With few exceptions, enterprises today rely on IT for the delivery of business or mission critical services - often directly to the end-consumer. It is vitally important therefore, that a mission critical Data Centre be designed, maintained, and operated with guaranteed high-availability and efficiency in mind. Fact is however, that most Data Centre's do not meet the full availability, capacity, safety or efficiency requirements demanded by the enterprise.

### CDCE®: The Certified Data Centre Expert

A 5-day expert level course which prepares participants to run a project required to scope, plan, design, implement, and retire or move a Mission Critical Data Centre up to 'Tier Level 4'. CDCE® builds upon knowledge gained in CDCP® and CDCS® courses. Participants who pass the exam will join the industry's elite Data Centre project design experts.

## Certified Data Centre Courses

There are three levels of certification for Mission Critical Site Facilities courses:

- CDCP®: Certified Data Centre Professional
- CDCS®: Certified Data Centre Specialist
- CDCE®: Certified Data Centre Expert

For Data Centre Facility Operations, please refer to our CDFOM®: Certified Data Centre Facilities Operations Manager course.

## Audience

The primary audience for this course is a Data Centre Owner/Investor, Data Centre Facilities and/or Operations Manager, IT professional working in and around the Data Centre, having oversight accountability or responsibility for achieving and improving high availability and manageability of the Data Centre and will be involved in the design/build, renovation or relocation of a mission critical Data Centre.

## Prerequisites

Participants must hold a valid CDCS® certificate in order to be able to register for the CDCE® class.

## Delivery Structure

This is an instructor-led course which leads participants through EPI's lifecycle phases via lectures, design case studies and practical discussions. Special attention is given to critical aspects such as how to maintain momentum of a build/move project on schedule and on budget over its life cycle in line with the business requirements, and how to test and commission a newly built site. At the end of the course, participants are required to present plans to improve a given design and to remedy operational flaws in a 'Tier-4' Data Centre based on assigned individual/group case work.

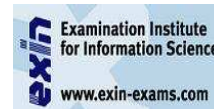
## Benefits Realized

At completion of the course, participants will be able to:

- Understand the design lifecycle phases of Data Centre build projects and the stages involved.
- Discuss requirements to a great level of detail with vendors, suppliers and contractors and ensure that all parties perform/deliver to the customers' business expectations and not just what is right for the vendor.
- Intelligently verify technical level design plans, quotes and offers proposed by vendors/contractors.
- Understand Tier-levels for both the Data Centre design/setup, as well as operational Maintenance Tier-levels.
- Understand the various building considerations required such as bullet proofing, mitigation of seismic activity, fire ratings and thermal stability.
- Understand how to build up a raised floor and ensure it is done properly to avoid misalignment, level differences and static pressure leakage.
- Understand how to read Single Line Electrical Diagrams and correct the most common design mistakes made.
- Choose suitable UPS technology and parallel configurations; learn how to make sure that the classic mistakes when installing parallel systems are avoided.
- Understand how to calculate battery banks enabling you to double check contractor offered configurations ensuring they meet your requirements.
- Understand immunity design distances to avoid EMI issues for human safety and minimize ICT disturbances.
- Understand ACMV setup and CFM, Delta-T and other important factors for an efficient cooling infrastructure.
- Understand site contamination factors and limitations.
- Understand full details of fire suppression options, how to calculate gas content and verify installations.
- Understand how to measure Data Centre energy efficiency and how to improve it.
- And much more ...

Take the challenge today! Join the elite group of Certified Data Centre Experts!

World-Wide accredited by:



# Course Syllabus

## Day 1

- **Setting Up The Data Centre Project Team**
  - Defining Project Management Structure
  - Defining Team Structure
  - Define Roles And Responsibilities
  - Selecting Team Members
  - Managing The Team
- **Managing A Data Centre Build Project**
  - DC Project Management Lifecycle Stages & Phases
  - Defining A Realistic & Optimistic Plan
  - Pro-Active Delivery Tracking
  - Safety Management
  - Regulatory/Statutory Requirements
  - Project Meetings
  - Corrective Action Planning
  - Communication
  - Project Management Reporting
- **Scoping The Data Centre Project Requirements**
  - Biz Requirements Analysis: Business, Technology, People
  - Biz Impact Analysis: Site Selection, Socio-Economics, Legal, Risks
  - Feasibility Study Requirements: In-Source/Out-Source
  - Data Centre Design Measures:
    - ◇ Availability / Redundancy for:
      - ◆ Facility (Architectural / M&E)
      - ◆ Systems & Infrastructure
      - ◆ Applications & Data
    - ◇ Establish Success Criteria: (RASUI / FURPS / RASR / RAMS)
      - ◆ Facility (Architectural / M&E)
      - ◆ Systems & Infrastructure
      - ◆ Applications & Data
      - ◆ Health & Safety Systems
      - ◆ Incident Restoration & Maintenance Regimes
  - Scalability & Redundancy Planning/Maintaining Availability/Ops

## Day-2

- **Planning And Designing The Data Centre Areas**
  - Defining & Sizing Optimal Areas & Locations
  - Planning Optimal Equipment Location In Facilities Areas
  - Planning Rack & Equipment Locations In Computer Room
  - Planning For Maintainability & Serviceability
  - Planning For Command Centre Management
  - Planning For Security, Health & Safety Regulations
  - Planning For Regulatory Compliance
  - Practical: Design/Review - Data Centre Layout
- **RFP (Request For Proposal) / Tendering**
  - Structure of an RFP / Tender
  - Minimum Requirements Definitions
  - Additional Requirements
  - Setting Up Response Evaluation Criteria:
    - ◇ Technical
    - ◇ Commercial
    - ◇ Financial
    - ◇ Organizational And Other Criteria
  - Managing Incoming Responses:
    - ◇ Qualifying Criteria
    - ◇ Short Listing Criteria
    - ◇ Validation Criteria
    - ◇ Selection & Awarding Criteria
    - ◇ Purchase Order Issuance Criteria

## Day-3

- **Design Review**
  - Architectural Review:
    - ◇ Site Access & Maintenance Service Pathways
    - ◇ Service Supplier Entrance (Telco, Power, Diesel, Water)
    - ◇ Steel/Concrete Structure, Wind Loads & Seismic Coping
    - ◇ Structural Loading & Strengthening (Total Bldg Loading)
    - ◇ Façade & Cladding, Storm/Weather Damage Protection
    - ◇ Occupational Safety, Health & Safety Requirements
  - Mechanical Review:
    - ◇ Floor Loading (Slab-to-Slab, Raised Floor, Ceiling, Lifts)
    - ◇ ACMV Infrastructure: Raised Floor & Air Flow Dynamics
    - ◇ Vapour Barriers, WLD & Environmental Management

- Electrical & Power Distribution Review:
  - ◇ Power Entrance & Distribution to Tier-Level Compliance
  - ◇ EMF/Electrostatics/Noise/Earthing & Grounding Review
  - ◇ Single Points Of Failure: Current & Voltage Protection
  - ◇ Human Safety / Scalability & Growth
- Review Of Room/Space Allocations
- Review Of Computer Room & Rack/Equipment Allocations
- Security & Safety Review: Bullet Proofing, Physical/Logical
- Structured Network Cabling Review: All Aspects
- Fire Suppression Review: All Aspects
- EMS/BMS Review: All Aspects
- Consolidated Drawing Review: As-Built
- Practical: Design Review-SLD/Cooling/Cabling/Fire
- **Technical Selection Of Equipment**
  - Technical specifications
  - End-Of-Life
  - Warranty
  - Service / Maintenance
  - Witness Test
- **Financial Selection Of Equipment**
  - ROI / ROA Calculations:
    - ◇ Purchase Price
    - ◇ Net Present Value
    - ◇ Maintenance & Vendor Support Capability
    - ◇ Energy Efficiency
    - ◇ Cost of Operations & Maintenance
- **Vendor Selection**
  - ◇ Criteria Setting For Selection
  - ◇ Distribution/Reseller Requirements
  - ◇ Service/Maintenance Criteria
- **Acquisition Guidance**
  - ◇ Purchasing: PO/Freight, Warehousing & Port Clearance
  - ◇ Site Coordination: Physical Delivery/Storage/Installation
  - ◇ Shipment: Receive/Inspect/Unpack/Trash Discard

## Day-4

- **Test and Commissioning**
  - Defining The T&C Plan
    - ◇ Define Scripts
    - ◇ Measure Criteria & Data Sampling
    - ◇ Thresholds & Baselines
    - ◇ Creating Checklists
    - ◇ Reporting And Follow-Up Procedures
  - Required Tools
  - Corrective Action Reporting And Planning
  - Avoiding Common Mistakes
  - Practical: Develop T&C Plan
- **Defect Management**
  - Defect Liability Planning & Scheduling
  - Recording & Follow-Up
  - Defect Liability Period & Contract Management
  - Maintenance Visits & Warranty Considerations
- **Facility Hand Over**
  - Test Reporting
  - Training And Assessment
  - Maintenance & Operations Considerations
  - Doc Requirements & Assembly Review (AS-BUILT)
  - Key Sign-Offs & Taking-Over Certification
  - Practical: Develop Hand-Over Checklist / Maintenance Proposal

## Day-5

- **Decommissioning of Data Center Facilities**
  - Life Cycle Stages
  - Setup Decommissioning/Migration Plan
  - Regulatory Requirements
  - Safety Requirements
  - Disposal Of Dangerous Goods & Hazardous Substances
  - Make Good Requirements
  - Key Hand-Over /Hand-Off & Sign Off
- **Discussion Of A Sample Site**
- **Q & A Review & Exam Preparation (Time Permitting)**
- **Self Study Period**
- **EXAM: Certification Data Center Expert (90 Minutes)**

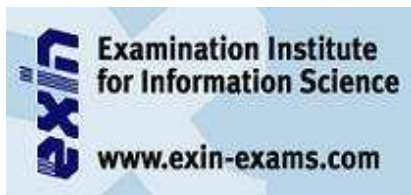
## The Trainer

This course will be delivered by a Data Center veteran with many years of experience in designing, auditing and running Data Center's internationally. Attendees are able to tap on the trainer's extensive experience to solve practical problems in their current projects adding tremendous value.

## Certification & Accreditation

Certification exams papers can be taken in paper based format at the end of the last day of the course, or online via an authorised channel partner, depending on the country in which the course is delivered. The exam is a one and half hour, 60 questions, closed book exam. Results of the exam will be communicated to the attendee within four weeks following the examination. Attendees who successfully pass the exam will receive the official "Certified Data Centre Expert" Certificate.

The CDCE® is a world-wide recognized certificate accredited and administered by the **Examination Institute for Information Science (EXIN)**.



EXIN, is a global, independent and not for profit 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 independent testing and certification. EXIN offers candidates the opportunity to take examinations at a time and place of their choice. Every day, EXIN examinations are taken in more than 125 countries on six continents, and in more than 15 languages.

In the US (United States of America), the course is accredited and administered by ICOR.



ICOR is a not-for-profit education and credentialing organization that provides professional development, certification, thought-leadership, and the latest in research and industry trends in the area of organizational resilience.

## EPI's Data Centre Certification Roadmap

EPI offers four courses (depicted below) that deal with the critical components of design, implementation, operations & optimization and retiring of a mission critical Data Centre:



- Certified Data Centre Professional
- Certified Data Centre Specialist
- Certified Data Centre Expert
- Certified Data Centre Facility Operations Manager

## Recommended Next Course

To further extend your skills on the Operational side of Data Centre management, we recommend the Certified Data Centre Facility Operations Manager course. For other courses or for further certification options, visit our website at [www.epi-ap.com](http://www.epi-ap.com)

## CDFOM: Certified Data Centre Facility Operations Manager

A 3-day course designed to expose participants to the key elements involved in the day-to-day Data Centre Operations. The course highlights the overall framework needed to run a Mission Critical Data Centre in a controlled or internationally aligned manner demanded by a resilient business organization requiring the highest levels of availability and reliability.

Proven best practices are focused on in order to reveal detailed insider information on how to get the most out of Data Centre Operations, where results are instantly accomplished without having to make huge investments in software and/or hardware. By emphasizing all required end-to-end Data Centre Operations processes, all aspects relevant for successfully running and maintaining critical Data Centre's are revealed.

CDFOM® is a standalone course which builds upon knowledge gained in our other Data Centre courses. Participants who pass the exam will join the industry's rank of the accomplished Data Centre Facility Operations Managers. For a full course outline, visit our website at [www.epi-ap.com](http://www.epi-ap.com)

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