DATA CENTER CERTIFICATION TRAINING in GHANA
Feb 23rd-27th 2015
HOLIDAY INN, ACCRA

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IDCA Data Center Training Package
February 23rd-27th 2015 in Holiday Inn, Accra

Provided by:

TECHACT
World’s Data Center Powerhouse™

RACKAFRICA
safe • reliable • professional
JOIN THE ELITE...
Who has been certified by IDCA?

And thousands more in over 45 countries!

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About the Program:

IDCA Training Seminars are the most unique and comprehensive data center training programs worldwide, specifically designed for Executives, CIOs, CTOs, ICT & Data Center Managers, Consultants, Senior Operators, Project Managers, Engineers, Designers & Planners, focusing on the fundamentals as well as essentials in order to Evaluate, Design, Build, and Manage Advanced Data Centers at the optimum efficiency, and cost effectiveness.

The foundation of IDCA courses are based on bridging the gaps, overcoming the shortfalls and optimization the data center focus on the principal international standards such as ANSI/TIA, ITIL, NFPA, American Society of Heating Refrigerating and Air-Conditioning (ASHRAE), EN, the Chartered Institution of Building Services Engineers (CIBSE), ISO, Building Industry Consulting Service International (BICSI), BS, and many other latest industry standards and best practices, all combined, refreshed, enhanced and comprehensively expanded per IDCA principals & guidelines, coupled with hands-on proficiency of industry managing experts.

The Accreditation ladder:

➢ How Do I climb the Ladder?

IDCA certified courses are based on a ladder elevation scheme. Applicants of all diversities and backgrounds start from the Data Center Infrastructure Specialist (DCIS) course, which teaches them the foundations of the data center, data center infrastructure, data center standards and compliance. From there, professionals can either take the Management Route or the Expert Route. By taking the expert route the Data Center Engineering Specialist (DCES) course must be completed which comprehensively covers the engineering and design aspects of data centers, while the management track requires taking of the Data Center Operations Specialist (DCOS) course which covers all the aspects of the operations, maintenance, capacity management, planning, SLA/OLA management, efficiency planning, etc. These courses cover in-depth the values, complications and parameters of different data center Grade levels from the viewpoint of Infinity Paradigm™ as well as its predecessors coupled with latest industry trends and recommendations. DCOS and DCES courses are typically offered in combination with DCIS. By successfully completing both DCIS and DCES professionals are automatically awarded a third certificate: Data Center Infrastructure Expert (DCIE)®. Likewise, by completing both DCIS® and DCOS® professionals are awarded a third certificate: Data Center Operations Manager (DCOM)®. Upon obtaining either DCOM® or DCIE® status individuals become qualified for taking the breathtaking course Data Center Technology Professional (DCTP)® covering live comparisons and practical measure of actual technologies used for power, cooling, civil, security, fire, safety, EMS, BMS, management, monitoring, etc. By completion of DCTP®, DCOM® automatically becomes a Data Center Manager (DCM)® and a DCIE® automatically becomes a Data Center Expert (DCE)® in pursuit to becoming a Data Center Authority (DCA)®, which requires fulfilling DCA® criteria and thesis.
All the data center training course material covered in the Data Center Infrastructure Specialist (DCIS)®, Data Center Engineering Specialist (DCES)®, Data Center Operations Specialist (DCOS)®, Data Center Operation Manager (DCOM)®, Data Center Infrastructure Expert (DCIE)®, Data Center Technology Professional (DCTP)®, Data Center Expert (DCE)®, Data Center Manager (DCM)®, and Data Center Authority (DCA)® data center training courses has been carefully selected and distributed under the 9-module course work, by industries top experts. The objective is to deliver and provide principles and information in the 360° life cycle of designing and/or managing the Data Center by displaying existing standards, practices, issues, technologies & methodologies, as well as revealing future methods, challenges, preferred practices and advancements.
For Who?
The IDCA courses are uniquely structured to suit the Executives, Senior Experts, Managers & Operators with many years of hands-on experience who Select, Design, Build, and Manage Data Centers on day-to-day basis, as well as those who are fresh in the industry and intend to pursue a data center career as beginners to the field. The courses render in-depth knowledge and actual field-expertise for Engineers, Architects, Designers, Project Managers, Consultants, Trainers and Auditors who come from diverse backgrounds and disciplines. Whether individuals come from Electrical background or Mechanical, Civil & Architecture, IT & Telecom, Cabling, Safety & Security, or simply Business & Management, the courses will effectively build the foundations necessary for all individuals from ground up in a comprehensive manner. In parallel, this is achieved by not ignoring the necessary details for the experienced crowd who intend to up-to-date their knowledge, complete their know-how, identify and correct their ineffective practices throughout the years.

By Who?
Following a solemn quest to locate the most knowledgeable experts in the data center field, only carefully selected professionals with data center design, build, & management experience, as well as exhibited years of outstanding teaching and research capabilities, certified and licensed by IDCA are allowed to deliver the courses. IDCA courses are only available through licensed IDCA Educational Institutions.

How?
With close attention, IDCA governs, the implementation of its stringent policies and measures for quality of delivery and conducting method of the data center training courses. IDCA data center training courses are structured to encourage dynamic participations, group activities, open dialogs rather than monolog lectures, embedded with wide array of problem solving exercises and activities that ensure the learnt content clearly digests and become applicable for live data center world interactions. All IDCA courses around the world, are delivered by licensed educational institutions, regularly audited with controlled oversight and involve official respondent feedback and customer survey forms.

Overwhelming 99.999%
absolute satisfaction from all attendees worldwide!

*According to IDCA survey on its data center certification programs filled out by all attendees.
Day 1
Data Center Overview
Data Center History
Data Center Definitions
The Data Center Beast
Data Center Downtime & Outage
Present Data Center Standards
Future of Data Center Standards

The Infinity Paradigm
Application Ecosystem (AE)
Core & Pyramid Models
The Organization
The 7 Abstraction Layers
Application Layer
Platform Layer
Compute Layer
ITI Layer
SFI Layer
Site Layer
Topology Layer
Application Delivery Model (ADM)
Application Delivery Infrastructure (ADI)
Data Center Node (DCN)
Logical Infrastructure
Physical Infrastructure

Grading Systems
Data Center Tiers & Classes
Data Center Grade Levels
AER, OER, EER, RER, SER
Efficacy Score Rating

Data Center Development
Data Center Tiers & Classes
Data Center Development Process
Data Center Phases

Site, Civil & Architecture
Data Center Site Selection & Criteria
Data Center Site Proximity, Hazard & Risks
Data Center Topology
Data Center Structure
Data Center Construction
Data Center Interior Fit-out
Data Center Space Relationships
Data Center CR, ER, MDA, HDA and ZDA
Data Center Raised Floor System
Data Center Grounding & Bonding
Data Center Earthing

Power Systems
Data Center Site Selection & Criteria
Logical Electrical Flow
DC, AC, W, AV Rates and Concepts
Utility Service
High Voltage Systems
Switchgear
Transformers
Low Voltage Systems
Uninterruptible Power Supply (UPS) Systems
UPS Configurations
Battery and Battery Types
Generators
Fuel Tanks
Power Distribution
ATS, STS
Power Cabling
Busbar Trunking System (BTS)
EPD
Grounding
Lightning Protection System
Alternative Power Sources
E/F, MF, EMP, EMI
EMF & EMP Shielding

Day 2
Data Center Cooling
Environmental Air
Cooling Capacity
Precision Cooling
Direct Expansion (DX) Systems
Non-DX Systems
Cooling Methodologies
Cold-Aisle / Hot-Aisle
CRAC/CRAH
Cooling Topologies:
Open CRAC Systems
Narrow Aisle Containment (Cold & Hot)
In-Row Cooling
In-Rack Cooling
Cooling Towers
Chillers
Data Center Water Supply

Fire Protection
Fire Types and Classes
Smoke and Heat Detection
Aspiratory Detection and Sensing
Sprinkler Systems
Gas Suppression Systems & Agents (FM200, Novec, etc.)
Fire Prevention Technology
Data Center Safety

Data Center Security
Physical Infrastructure Security
CCTV
Access Control
Mantaps
Barriers
Security Protocols & Procedures
IT Infrastructure Security

Data Center Structured Cabling
Cabling Layout
Patchk & Termination
Labeling
Intelligence

IT Infrastructure
System
Storage
Networks
Virtualization & Cloud
External Telecom Connectivity
High Availability Designs

Data Center Efficiency
Cost of Energy
Power Usage
Power Usage Effectiveness (PUE)
Data Center Infrastructure Efficiency (DCIE)
Applications and Hosting Models
Applications
Application Delivery Architecture
App Tiers
Colo vs Managed Hosting
ASP Hosting
Public & Private Clouds

Monitoring and Management
MMS, EMS, EPMs, BMS
Temperature Monitoring
Leak Detection
Integration

Network Operation Center (NOC)
Systems
Procedures
Control

Data Center Trends
Latest Data Center Technology Trends
Latest Data Center Industry Trends
Syllabuses - Data Center Engineering Specialist (DCES)

This course targets professionals who intend to become experts in the data center field. It caters extensive information to Infrastructure Architects, Designers, Consultants and Auditors, as well as facility operators, IT managers, application managers, engineers and project managers. The DCES course empowers Infrastructure Specialists (DCIS)® with selection and design knowledge that will assist engineers in formulating the appropriate framework for their Data Centers. The course will also enhance the awareness of stakeholders and enable the precise appraisal of their Data Center investments through Value Engineering (VE), leading to higher availability, reliability, efficiency, reliance, security, safety and capacity at optimized costs.

Day 1

Intro to Data Center Engineering
Engineering Importance
Data Center Components
Data Center Key players
Tools and Techniques
How and Where to Get Help

Data Center Engineering Process
The Data Center EPS
Phaseed Process
Adaptive Need Conversion
Understanding Application
App Architecture
ETT, TPS, Load and Complexity Factor

Data Center Classification
Data Center Tiers and Classes
Data Center Grade Levels
Data Center Definitions and Options
The Infinity Paradigm Review
Standard Requirements
Designing with Limitations

Data Center Availability Engineering
Operational Effectiveness
Types of Availability
Common Availability Figures
Calculating Availability
Redundancy
Design Efficiency

Data Center Site and Building
Site Selection Considerations
Architectural Building Systems
Walls, Structural Ceiling & Floor Systems

Day 2

Data Center Power Systems
Electrical Systems – Macro View
Power System Goals
Electrical Concepts: PF, KW, KVA, KVAR
3-Phase Power
Single Line Diagram (SLD)
Power Transmission
Utility Power
Power Feed Classifications
Break before Make
Make before Break
Topologies
Unit Substations
Circuit Breakers
Swithgear
Arc Flash
Standby Generator
Transfer Switches (ATS, STS, etc.)
UPS Systems
Power Distribution Unit (PDU)
Busbar Trunking System (BTS)
Calculating Power Requirements & Load
Important Considerations
Data Center Lighting Systems

Data Center Grounding System
Effective Grounding System
Equipment & Materials
Methods and Disciplines

Data Center Cooling & Mechanical Systems
Mechanical Systems Overview
Latent vs Sensitive Cooling
Sensible Heat Ratio
Cooling Cost Engineering
Humidity Cost Engineering
Heat Transfer Principles
Environmental Design Conditions
HVAC
Cooling System Topologies
Precision Air Cooling
Chilled Water Cooling
Direct Expansion (DX)
Comparing Solutions and Designs
Heat Transfer Fluids
Temperature Differential
CIV vs VAV Systems
Cooling Measurements
Cooling Layouts
Cooling Efficiency

Day 3

Data Center Fire Protection
Physical Infrastructure Security
General Considerations
Detection Systems
Prevention Systems
Suppression Systems
Fire Concepts
Fire Classifications
VESDA and HEISD
Halocarbon vs Inert Agents
Fire Suppression Sizing & Calculations
Water-based Systems

Data Center Structured Cabling
Connectors
UTP, FTP, STP Cables
Singlemode vs. Multimode Fiber
Data Center Cabling Topology
Horizontal Cabling
Backbone Cabling
Cabling Security
Structured Cabling Considerations

IT Infrastructure
Data Center Telecommunication
Data and Data Transmission
DSL vs. T1
Telecom Categories and Capacities
Optical Carrier
SONET, OC, STS, SDH, STM
Signal Hierarchy
Dark Fiber

Information Technology
Server Types and Components
Storage Types and Media
Storage Engineering
RASD Methods
Network Infrastructures
Network Topologies
Routing & Switching Protocols
OSPF, BGP, OSPF, VRRP, MPLS, ATM, Frame Relay
IPv4 vs. IPv6
OSI Model
Load Balancing Types & Methods
6-Pack Architecture
Firewalls and Intrusion Detection
Virtual Private Networks
VPN Protocols: IPsec, L2TP, PPTP, SSL
Virtualization Types & Methods
Cloud Infrastructure
OpenStack

Data Center Safety & Security Systems
CCTV, DVR, NVR, etc.
Access Control Systems
Mantraps & Airlocks
Tracking & Tracing
The Security Office
IT Security
Safety Principals

Examination
IDCA Lecturers:

All IDCA courses are lectured by certified DCCIs who are world’s premier data center experts, veterans with extensive knowledge and wealth of hands-on expertise. IDCA Data Center Certified Instructors™ (DCCI) are one of a kind. DCCI’s are a professional acknowledged and certified by IDCA as someone with the qualifications of a data center certified trainer. DCCI™ signifies authoritative expertise in the subject of data center and possession of the required merits and expertise to conduct data center training and knowledge-transfer.

IDCA data center certified instructors posses the highest expertise known to the industry all whom have achieved the DCA status, known to be the highest possible achievement in the data center industry. Following DCA they have completed rigorous requirements to become DCCIs. In addition to their highly superior knowledge, know-how and expertise, they have gone through decades of hands on experiences and have worked on mega projects as well as being invited in national and internationally mission critical projects, and guest speaker for advanced data center topics. DCCI’s know the language of both the technical experts as well as business people who they will be training from the ground-up, geared for data center industry performance.

Teamwork, Live Case Studies, Problem Solving:

In addition to the comprehensive, referenceable and self-fulfilling coursework, IDCA enforces lively and unique classroom projects addressing the data center problems today, which allows for group projects, interactions and problem solving. The class problems simulate everyday issues, urgencies, obstacles and geared towards streamlining effective decision-making processes in the data center space. Depending on the specific course individuals take, the problems can develop efficient planning and solution building capabilities within the engineering, operations, as well as the managerial space.
Networking Opportunity - Become one with a Greater Community, the Elites!

IDCA trainings attract a broad spectrum of backgrounds, disciplines, interest groups and experts and decision makers. All IDCA events provide an opportunity for industry peers coming from diverse backgrounds and premier organizations to network with one-another. Attendees range from wide array of SMEs to Fortune 500s as well as mission-critical government institutions from around the world. Hence, attendees will have a precious chance to expand their network, become part of a greater community of exalted experts, and understand the issues their colleagues are facing in other institutions, industry sectors or other continents.

Hospitality

All IDCA events, as a matter of standard, are hosted with 5 Star treatments for the attendees in order to provide a comfort atmosphere for the candidates, ideal for learning and absorbing the wealth of knowledge that is transferred to them.
What is included?

- The Course Lecture
- The Course Books & Material
- Three (3) Certificates: DCIS® DCES® DCIE®
- Examinations
- Breakfast
- Two (2) Daily Coffee Breaks with Refreshments
- Unlimited Coffee, Tea, Refreshments and Snacks
- 5 Star Buffet Lunch with Diverse Cuisines
Agenda, Everyday - Monday through Friday

- 08:30 A.M. Breakfast - Networking
- 09:00 A.M. Lecture
- 10:30 A.M. Mid-Morning Break – Networking
- 11:00 A.M. Lecture
- 12:30 P.M. Buffet Lunch – Networking
01:30 P.M. Lecture

03:00 P.M. Mid-Afternoon Break – Networking

03:30 P.M. Lecture

05:00 P.M. Day End.
Subject: Certified IDCA Data Center Training

Please find enclosed the Certified Data Center Training seminar quotation for the IDCA Training being conducted on 23rd-27th Feb 2015 in Ghana.

This quotation is a commercial offer for your requested seats. The package includes:

- **2-days DCIS®** course, daily lectures, materials, examinations, certifications as well as coffee breaks, beverages and lunch buffets everyday.

- **3-days DCES®** course, daily lectures, materials, examinations, certifications as well as coffee breaks, beverages and lunch buffets everyday.

- **DCIE®** (Data Center Infrastructure Expert) certification will be automatically issued, if candidates have successfully completed DCIS® and DCOS®, therefore the quoted track offers three (3) certification upon successful completion of the above two (2) exams.

All courses include daily lectures, coffee breaks, beverages, lunch buffets, examination and certification, while the materials cover Building, Architecture, Construction, Power & Cooling Infrastructure, Security, Telecom, EMS/BMS, IT/ICT, Policies, Procedures, Standardization, Engineering & Design, Operations, Management, and much more based on latest best practices. Obtaining the above certifications are major stepping-stones for becoming a distinguished data center specialist through learning advanced fundamentals and in-depth expertise.
Certified Data Center Infrastructure Expert (DCIE)®
DCIS + DCES

Certified Data Center Training

Data Center Infrastructure Expert (DCIE)®

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<tr>
<td>2 days IDCA Certified Data Center Infrastructure Specialist® (DCIS) Training Seminar</td>
<td>$2,549</td>
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Payment Terms:
✓ Quotation is only Valid for 30 days.
✓ Cancellation policy: In case of cancellation, 90% of the amount is refundable. Cancellations are accepted up to fifteen days from the date of quotation or one month before the training start date, whichever comes first.

Registration form on following page
REGISTRATION FORM

• = Please fill in

Full Name*: ____________________________ Organization Name*: ____________________________

Tel*: ________________________________ Email*: ________________________________

Please select which event(s) you would like to register for:

☐ Feb 23-27  Data Center Infrastructure Expert (DCIE)® - Ghana
             Movenpick Hotel & Resorts, Accra

Number of Seats: ________________.

Signature*: ____________________________  Date*: ____________________________