

DESIGN & DEPLOYMENT OF DATA CENTER INFRASTRUCTURE

“Engineering Scalable, Secure, and Energy-Efficient Data Centers for Modern Enterprise Demands”

Schedule

Date	Venue	Fees (Face-to-Face)
13 - 17 Apr 2026	Dubai, UAE	USD 3495 per delegate

► **Available delivery methods:** Face-to-Face & Online Training

Introduction

As organizations scale their digital capabilities, data centers form the backbone of enterprise operations, cloud platforms, and service delivery. The design and deployment of a modern data center must balance security, performance, scalability, redundancy, and energy efficiency.

This intensive 5-day course provides IT, facilities, and infrastructure professionals with in-depth knowledge of planning, designing, and deploying data centers based on international standards and best practices. Participants will cover the physical infrastructure, cooling systems, power management, security, and disaster recovery considerations essential for a resilient and future-ready data center.

Objectives

By the end of this course, participants will be able to:

- Understand key design considerations for building efficient and secure data centers
- Apply industry standards such as TIA-942, Uptime Institute Tier ratings, and ASHRAE guidelines
- Evaluate power, cooling, and space planning needs for different scales of deployment
- Integrate physical and cyber security controls into infrastructure planning
- Develop a roadmap for sustainable, scalable data center operations

Why Attend

- Build a solid foundation for designing and expanding enterprise-class data centers
- Ensure high availability and fault tolerance through effective planning
- Stay aligned with global compliance and energy efficiency standards
- Learn to manage capacity, performance, and safety from both IT and facilities perspectives
- Gain technical knowledge to support modernization, migration, or cloud-hybrid architecture

Target Audience

This program is designed for:

- IT infrastructure and data center engineers
- Network, systems, and cloud administrators
- Facilities managers and project engineers
- Architects and consultants involved in data center planning
- Security, compliance, and disaster recovery officers

Individual Benefits

Key competencies that will be developed include:

- Data center design and tier architecture knowledge
- Power and cooling system sizing and redundancy planning
- Environmental monitoring and airflow optimization
- Structured cabling, rack layout, and network integration
- Energy efficiency planning and compliance awareness

Organizational Benefits

Upon completing the training course, participants will demonstrate:

- Improved design and deployment of data center infrastructure
- Reduced downtime through high-availability architecture
- Better capacity planning and operational cost management
- Stronger cybersecurity and physical security integration
- Enhanced support for business continuity and disaster recovery

Instructional Methodology

The course follows a blended learning approach combining theory with practice:

- Strategy Briefings - Data center evolution, tier standards, and regulations
- Case Studies - Global data center success stories and failure analysis
- Workshops - Design schematics, load calculations, and system configurations
- Peer Exchange - Sharing of deployment challenges and strategies
- Tools - Templates for space planning, redundancy design, and audit readiness

Course Outline

Training Hours: 07:30 AM - 03:30 PM Daily Format: 3-4 Learning Modules | Coffee Breaks: 09:30 & 11:15 | Lunch Break: 01:00 - 02:00

Day 1: Data Center Design Fundamentals

- Module 1: Introduction to Data Center Architecture (07:30 - 09:30) • Definitions, classifications, and global trends • Tier levels, certifications, and design frameworks
- Module 2: Site Selection and Space Planning (09:45 - 11:15) • Environmental, security, and scalability considerations • Building structure, airflow paths, and zoning
- Module 3: Workshop - Tier Design Scenario Planning (11:30 - 01:00) • Map requirements to Tier I-IV design profiles

Day 2: Power Infrastructure

- Module 4: Electrical Supply and Redundancy (07:30 - 09:30) • Power load calculations and demand planning • UPS, generator, and dual-feed configurations
- Module 5: Grounding, Cabling, and Safety Standards (09:45 - 11:15) • Electrical layout and maintenance strategies • Compliance with IEC and IEEE standards
- Module 6: Workshop - Designing Power Layouts (11:30 - 01:00) • Develop a resilient power distribution scheme

Day 3: Cooling and Environmental Controls

- Module 7: HVAC Systems and Thermal Management (07:30 - 09:30) • Precision cooling, hot/cold aisle, and containment • ASHRAE thermal guidelines
- Module 8: Monitoring and Energy Efficiency (09:45 - 11:15) • DCIM tools and PUE measurement • Intelligent sensors and automation
- Module 9: Workshop - Cooling Strategy Design (11:30 - 01:00) • Create a thermal zone layout for equipment areas

Day 4: Physical and Network Infrastructure

- Module 10: Structured Cabling and Rack Layout (07:30 - 09:30) • Horizontal/vertical cabling, labeling, and standards • Network design integration
- Module 11: Physical Security and Fire Protection (09:45 - 11:15) • Access control, surveillance, and fire suppression systems • Environmental risk assessment
- Module 12: Workshop - Physical Layout Design (11:30 - 01:00) • Plan rack layout and secure zones for sensitive systems

Day 5: Testing, Commissioning, and Sustainability

- Module 13: Testing, Commissioning, and Handover (07:30 - 09:30) • Load testing, system validation, and QA processes • Documentation and performance benchmarking
- Module 14: Disaster Recovery and Green Data Center Trends (09:45 - 11:15) • DR planning and backup infrastructure • Energy-efficient design and carbon footprint reduction
- Module 15: Workshop - Final Project: Data Center Blueprint (11:30 - 01:00) • Present a complete design proposal with critical infrastructure

Certification

Participants will receive a Certificate of Completion in Design & Deployment of Data Center Infrastructure, validating their expertise in planning, constructing, and managing enterprise-grade, efficient, and secure data centers.

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