Szkolenie: HPE

Certified Data Center Specialist (CDCS®) Training with Exam

Cel szkolenia:

This 3-day course is designed to bring participants to the level of a suitable sparring partner with suppliers. They will be able to verify offers provided by vendors for correctness, effectiveness, and efficiency. CDCS is a must have certification for professional data center managers and personnel and is a prerequisite for individuals wishing to achieve the CDCE status.

After completion of the course, the attendee will be able to:

- Understand the design life cycle of data centers and the stages involved.
- Discuss the data center requirements in great level of detail with vendors, suppliers, and contractors to ensure that these requirements are met.
- Validate design plans, quotes, and offers proposed by vendors/contractors.
- Understand redundancy levels for both the data center design/setup and maintenance.
- Understand the various building considerations such as bullet proofing, mitigation of seismic activity, fire ratings, and thermal stability.
- Understand how to install a raised floor that meets requirements, avoiding misalignment, level differences, and leakage.
- Understand how to read a Single Line Electrical Diagram to identify and avoid the most common design issues.
- Choose the correct UPS and parallel configuration, learn, and avoid classic parallel installation mistakes.
- Understand how to calculate battery banks, validate offered configurations to ensure they meet requirements.
- Understand what distance to keep to avoid EMF issues for human safety and equipment disturbances.
- Understand the fundamental cooling setup, CFM, Delta-T and other important factors.
- Understand contamination factors and limitations.
- Understand full details of fire suppression options, how to calculate gas content and verify installations.
- Understand how to measure data center energy efficiency and how to improve it.

Audience:

The primary audience for this course is an IT, facilities or data center operations professional working in and around the data center and having the responsibility to achieve and improve hi availability and

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manageability of the data center.

Plan szkolenia:

- Data center design/life cycle overview
  - Overview of the phases of a data center life cycle
  - Planning, re-alignment and continuous improvement
  - Standards and rating level definitions
  - Rating level history
  - Difference between Uptime and TIA-942
  - Rating level definitions
  - Redundancy options (N+1), 2N, 2(N+1)
  - Concurrent Maintainability/Compartmentalization
  - Example configurations
  - Substation and feed requirements
  - Maintenance options
  - Operational processes guidelines/Standards
  - Skill development
- Building considerations
  - Building location considerations
  - Floor and hanging load requirements
  - Fire rating for walls and glass
  - Blast protection
  - Bullet proofing
  - Forced entry protection
- Advanced raised floor and suspended ceiling
  - Raised floor installation guidelines
  - Techniques to install a proper and leveled raised access floor
  - Common mistakes
  - Choosing the right tiles and their locations
  - Seismic mitigating floor constructions
  - Choosing the correct suspended ceiling
- Advanced power
  - Power infrastructure layout
  - Generators
  - UPS systems

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- Harmonic filters
- Battery banks

- Advanced electromagnetic fields
  - Sources of EMF
  - Differences between single, three phase and bus-bar EMF sources
  - Options available to measure EMF and how to interpret the results from single-axes and composite measurements
  - Guidance on safe distance for equipment and humans
  - Calculation of EMF attenuation factor for shielding material permeability and saturation factors
- Advanced cooling
  - Important definitions; dry-bulb, wet-bulb, dew-point, RH, sensible and latent heat
  - Psychometric diagram and ASHRAE recommendations
  - Environmental class definitions and thermal specifications
  - Temperature/Humidity measurements guideline
  - Heat dissipation methods
  - Altitude impact on temperature intake to ICT equipment
  - Floor plan setup for effective cooling
  - Differences in tile surface and supporting structure, and their airflow performance impact
  - Rack door construction and the flow performance impact
  - Equipment Delta-T and its impact
  - Optimizing airflow
  - Thermal units conversions
  - Calculations for air volume displacement (CFM/CMH)
  - Cooling capacity calculations
  - Air-conditioning selection
  - De-humidifying/humidifying options
  - Air-conditioning efficiency
  - SHR impact on cost saving
  - Efficiency indicator
  - New cooling principle and techniques (Submerged, VSD/VRF/ECF/water- and air side economizers)
  - Redundancy guidelines for air-conditioners avoiding classic misconceptions and mistakes for meeting ANSI/TIA-942 compliant designs
  - Installation requirements
  - Connections to fire panel and EPO
  - Commissioning of air-conditioners

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- Set points and calibration
- CFD (Computational Fluid Dynamics)

- Advanced fire protection
  - Fire triangle and elements to stop a fire
  - Detection systems in detail (VESDA, VIEW, smoke sensors)
  - Considerations for installation of sensors
  - Proper testing of smoke sensors
  - Water based systems i.e., deluge, wet-pipe, dry-pipe, pre-action and why most of them don’t work and how to detect this
  - Details on inert, halocarbon systems and how to select the correct system for your data center
  - How to calculate the gas content ensuring the appropriate level is installed to suppress the fire including safety considerations
  - Other requirements for gas systems (release times, hold times, pipe install requirements, and other important factors)
  - Requirements for the fire detection panel
  - Installation verification, methods, what to check and how
  - New advanced fire suppression technologies
- Design and install scalable networking cabling system
  - ANSI/TIA-942 cabling structure topology
  - ToR, EoR Design
  - Intelligent patching systems
  - Installation best practice such as routing, bending radius, separation from power, containment fill ratio, fiber link loss calculator, bonding and grounding requirement
  - Standard for telecommunications labeling and administration
- Environmental specifications and contamination control
  - Acoustic noise effects, regulations, specifications, and limits
  - Data center contaminations and classifications
  - Measurements, standards, and limits
  - Preventive measures and avoidance
- Data center efficiency
  - Business drivers to go Green
  - High-availability or Green?
  - Green guidelines and standards
  - How to measure it and what are acceptable numbers compare to the general industry
  - PUE classes defined by Green Grid and issues with PUE
  - Techniques for saving energy in all parts of the data center i.e., application/system level, cooling, power distribution

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Wymagania:

Participants must hold a valid CDCP certificate (HK258S) in order to be able to register for the CDCS class.

Poziom trudności



Certyfikaty:

After completing the course, participants receive a certificate of completion of an authorized Veem course.

The exam is a one and a half hour, 60 questions, multiple choice and closed book exam. The candidate requires a minimum of 45 correct answers to pass the exam. Attendees passing the exam will be awarded the internationally accredited and recognized “Certified Data Center Specialist” certificate (CDCS). The certification is valid for three years after which the student needs to re-certify.

Prowadzący:

Authorized Veem Trainer.

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