



HP Education Services Course Description

Certified Data Center Specialist (CDCS®) Training (HK259S)

The Certified Data Center Specialist course is a three-day course 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. CDCS® is a pre-requisite for individuals wishing to achieve the CDCE® status.

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 manageability of the Data Center.

Prerequisites

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

Delivery structure

- The courses are lectured by certified trainers. CDCS® is an instructor-led course that uses a combination of lectures and question-and-answer sessions, to discuss participants' specific needs and issues experienced in their own environment. Participants are able to tap into the trainer's extensive experience to enable them to solve practical problems in their current environment, thus adding tremendous value.

Course objectives

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.

Course title:	Certified Data Center Specialist (CDCS®) Training
HP product number:	HK259S
Category/Subcategory:	Data Center / Design & Build
Course length:	3 days
Level:	Advanced
Delivery language:	English
To order:	You can register your interest for this course online at http://www.hp.com.au/education .At the site, select the course under EPI portfolio and you will see dates for the course. Register your interest for the date of your choice.

- 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.

Examination accredited by EXIN

- 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.

Benefits to you

- Understand more about the design and build of data centers, particularly with regard to verifying vendors' offers.
- Receive training and advice from one of the industry's leading experts.
- Obtain the CDCS® certificate.

Why education services from HP?

- Recognized as an IDC MarketScape leader for IT education ("Worldwide IT education and training 2013 vendor analysis" Cushing Anderson, IDC MarketScape, #239139, January 2013).
- Global training with more than 90 training locations worldwide.
- Unmatched technical expertise and support for HP products and technologies.
- HP MyRoom for real-time collaboration and Virtual Labs for a real hands-on experience.
- The training you need, when and where you need it with our Virtual Instructor-Led Training (VILT).
- Comprehensive curriculum of job-specific training leading to certification.
- Streamlined purchase and management of training with HP Care Pack Services for Education.
- Our HP Education Consulting team has delivered best-in-class tailored training solutions to clients for more than 30 years.
- One of the top 20 training and content development providers (TrainingIndustry.com - 2013).

Next steps

- Certified Data Center Expert Training (HK260S) prepares participants to run a project which includes scope, plan, design, implement, and retire or move a mission critical Data Center up to the highest redundancy level.
- Certified Data Center Risk Professional Training (H6D35S) focuses on the core processes of managing risk in the data center and/or IT and is based on the leading standards in the industry.

Detailed course outline

Data center design / life cycle overview

- Overview of data center life cycle stages
- Planning, re-alignment and continuous improvement

Redundancy Levels

- History of redundancy level definitions
- Difference between Uptime® and ANSI/TIA-942
- Redundancy level definitions, categories and measure points
- Concurrent maintainability
- Compartmentalization
- Redundancy options
- Maintenance options
- Operational processes guidelines/standards
- Skill development

Building considerations and standards

- Building location considerations as per ANSI/TIA-942
- Floor loading 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 ensure a properly installed raised access floor
- Common mistakes
- Pedestals and stringer requirements as per ANSI/TIA-942
- Choosing the right tiles and their locations
- Seismic mitigating floor constructions
- Choosing the correct suspended ceiling

Advanced power

- Power infrastructure layout
- Generators
- UPS systems
- Harmonic filters
- Battery banks

Advanced electro magnetic 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
- Effective cooling floor layout
- Differences in tile surface and supporting structure, and their air flow performance impact
- Rack door construction and the air flow performance impact
- Equipment Delta-T and its impact
- 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 such as submerged cooling, VSD/VRF, EC-Fans, and Economizers
- Redundancy guidelines for air-conditioners to avoid classic misconceptions and mistakes for compliant designs
- Installation requirements
- EPO/ Commissioning of Air Conditioners
- 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
- Testing procedures for smoke sensors

- Difference in water based systems i.e. dry-pipe, pre-action, and why most of them don't work and how to detect these
- Issues with dry pipe systems
- Details on inert, halocarbon systems and how to select the right gas for your data center
- How to calculate the gas content ensuring the appropriate level is installed to suppress fire
- Other requirements for gaseous systems (release times, hold times, pipe installation requirements and other important factors)
- Requirements for the fire panel
- Installation verification - what to check and how
- New fire suppression techniques which prevent fires from igniting

Design and Install Scalable Networking Cabling System

- ANSI/TIA942-A cabling structure
- ToR, EoR Design
- Cabling types recommended for data centers
- New products and alternatives
- Vendor design and installation information
- 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

- Acoustic noise regulations, specifications, effects and limits
- Data center contaminations and classifications
- Measurements, standards and limits
- Preventive measures and avoidance
- Electro Static Discharge (ESD)

Data center efficiency

- Business drivers to go Green
- High-availability or Green?
- Green guidelines and standards
- Power efficiency indicators
- How to measure it and what are acceptable numbers compare to the general industry
- PUE classes defined by Green Grid
- How to achieve power savings in the data center; various techniques to save energy in all parts of the data center i.e. application/system level, cooling, power distribution

Mock exam



EXAM: Certified Data Center Specialist

For more information

To locate contact information and to learn more about education services, please visit our web site at

<http://www.hp.com.au/education> .