ASHRAE

DCProfessional Development has produced a comprehensive foundation course covering the entire thermal envelope, helping to bring ASHRAE's principles to a wider audience.

Learn the principles of ASHRAE's TC9.9 datacom series through our interactive online training program.

Why Choose This Training?

- Learn the principles of ASHRAE's TC9.9 datacom series in a digestible way

- Stay ahead of the curve in this demanding industry, with the only provider of ASHRAE-based online training

- Decrease your bottom line spending or total cost of ownership by completing the entire suite of courses

Learning Outcomes

- Summarize the purpose and history of ASHRAE and ASHRAE TC9.9
- Describe datacom and ITE environment characteristics
- Name the new ITE and datacom environment envelopes
- Identify how heat density and future power trends affect the datacom environment
- List the key aspects of datacom facility planning and design
- Recognize all thermal envelope management and design factors
- Recognize how each type of datacom IT equipment affects facility load
- Estimate the overall heat load when given the necessary variables
- Recognize the importance of each of the 5 design considerations for data center cooling systems
- Identify the types of chillers and condensors
- Recognize basic design and operation elements for each piece of facility equipment
- Recognize the important piping design considerations for facility and data center integration
- Recognize the elements needed for a sound water treatment plan
- Differentiate between the functionality and delivery of the most common cooling methods
- Recognize the benefits and concerns

- of vertical under floor and overhead delivery methods
- Recognize the importance of the chiller plant in air cooling systems
- Identify key elements to consider when selecting air cooling system for the datacom environment
- List the key properties and usage considerations of 3 coolant types; water, fluorocarbons and refrigerants
- Identify when and why liquid cooling is a superior option to air cooling
- Indicate the basic cost considerations and test objectives for each of the 5 commissioning levels
- Differentiate between the liquid cooling configurations at both the rack and equipment levels
- Recognize the advantages of a liquid cooled system configured with a CDU
- Indicate the operational requirements for facilities providing coolant to datacom equipment
- Recognize the impact of proper piping design specific to each CDU configuration
- Identify the causes and effects that arise from water quality issues within facility piping
- Recognize the key metrics required to accurately design and manage a data center white space
- Identify how specific technologies are utilized given varying design scenarios
- Recognize the key design differences

- when planning a data center utlilizing: CRAC cooling, in-row cooling, water cooling and economizer cooling
- Define the 3 types of economizers
- Identify the applicable regions of the ASHRAE Psychometric chart for air-side economizers
- Differentiate between the state of real-time energy consumption measurements in the data center for both legacy and state of the art
- List the key elements of the minimum and best practice levels of measurement as well as real-time measurement for state of the art measurement for real-time energy consumption
- Recognize how the real-time data is used, in particular how this information will be turned into knowledge that can lead to actionable items
- Indicate how the energy efficiency metrics from organizations such as The Green Grid and ASHRAE TC9.9 are utilized
- Indicate how to quantify the data center's power consumption for a data center housed in a mixed-use facility
- Recognize the two driving factors towards energy efficiency
- Identify the purpose of PUE and DCIE
- Indicate how a facility's PUE value is obtained and utilized
- Recognize key monitoring metrics for the following systems: Data Center Cooling, ITE and Power Distribution

DCPRO
DEVELOPMENT

How long does it take?

The complete ASHRAE suite consists of 5 online modules, each taking around 8 hours. You can complete the modules individually, or the whole range and earn 40PDHs.

What will you learn?

THERMAL GUIDELINES
This course covers the Datacom ITE power trends and thermal guidelines for data processing environments. It provides ways of applying trend information to datacom facility designs today.

COOLING FUNDAMENTALS PART 1
This course covers design, function and integration of air and liquid datacom cooling systems and discusses how commissioning is paramount to a proper functioning facility.

COOLING FUNDAMENTALS PART 2
This course covers a range of design solutions for datacom liquid cooling systems; including utilizing waterside and airside economizers, CDU usage and rack level liquid cooling.

DATACOM LOAD ENERGY METRICS
This course focuses on monitoring and control of optimization of data center energy efficiency, as well as predicting the health of the infrastructure by tracking performance trends.

DATA CENTER ENERGY EFFICIENCY
This course provides detailed information on the design of datacom facilities that will aid in minimizing the life-cycle cost and maximize energy efficiency in a facility to align with ASHRAE's direction to "lead the advancement of sustainable building design and operations"

DATACENTER SPECIALIST — IT
DATACENTER SPECIALIST — DESIGN
DATACENTER SPECIALIST — OPERATIONS
DATACENTER SPECIALIST — NETWORK

DCD
GROUP