



This two-day instructor-led course on Data Center Energy and Environmental Efficiency is designed to provide state-of-the-art information to students related to concepts on designing, planning, and implementing energy-efficient data center practices. As energy costs are typically the largest expense for a data center, efficiency considerations and metrics are covered in detail, as well as how they relate to the ongoing data center operation and maintenance. This course is 100% lecture.

Audience

- Facility management professionals who want to increase the efficiency of their data center facility
- IT professionals who want to gain greater insight into how electricity is used in the data center aside from the ITC equipment itself
- Energy professionals who need to gain familiarity with the nuances of data center power consumption

Prerequisites

- A good understanding of data center power and cooling systems
- A basic understanding of energy-related topics, including CO2 emissions and renewable energy

Course objective

After completing this course, the student should be able to:

- Explain the relationship between data processing power and electrical power used to support data processing
- Identify the major components of energy usage in data center operations

Course title: Data Center Energy and Environmental Efficiency

HP product number: hh608s

Category/Subcategory: Data Center Portfolio

Course length: 2 days

Level: Intermediate

Delivery language: English

To order: You can order this course online at <http://www.hp.com/learn>. At the site, select a country, then choose "registration" or "Book a course" and fill out the online registration form.

- Understand how energy costs in data centers are calculated
- Explain the concept of the PUE (Power Usage Effectiveness) metric in data centers and how it is employed for benchmarking energy use
- Identify major energy saving or energy cost reduction strategies in data center operations

- Explain how energy saving practices contribute to lower capital investment, reduced operational expense, and smaller environmental impact

Benefits to you

Students will receive instruction on Data Center Energy and Environmental Efficiency topics in the following critical areas:

- Strategy and Planning
- Design and Implementation
- Operations and Maintenance

Next steps

- For Next Steps, please contact your local HP Education representative for details.

Detailed course outline

Strategy and Planning

- Initial steps in energy and environmental strategies for data Centers
 - Overview of data center energy and environmental impacts
 - Effects of climate on power use
 - Energy and site selection
 - Water consumption in data centers
 - Renewable Energy Technologies (RET)
 - PUE analytics
 - Rating systems for data centers
 - Data center-related CO2 emissions

Design and Implementation

- Drivers of power and cooling equipment efficiency
 - Efficiency of electrical system topologies
 - Optimizing reliability and efficiency
 - Major power outages: world & USA
 - Effects of part load ratio on efficiency
 - Cooling/power systems effects on PUE
 - Effects of water temperature on chiller efficiency
 - Cooling systems
 - Airflow management and distribution
 - Economizer analysis
 - Control and automation systems
 - Integration of facilities and ITC systems
 - Consolidation & virtualization effects on CO2 footprint

Operations and Maintenance

- Ensuring energy efficiency and reliability
- On-site data measurement and collection
- Data analysis methodology
- Operating for energy efficiency and reliability
- Case study – energy efficiency and ROI analysis

© Copyright 2009 Hewlett-Packard Development Company, L.P. The information contained herein is subject to change without notice. The only warranties for HP products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein.

To locate country contact information and to learn more about education services, please visit our worldwide web site at <http://www.hp.com/learn>.

