Hands-On

Tier II: Understanding Data Center Environments (5-Day Intensive)

Course Description

This five-day course provides a comprehensive, structured exploration of modern data center environments. Building on foundational concepts, participants will gain practical knowledge of the physical and architectural aspects that enable reliable, scalable, and efficient data center operations. Through a mix of lectures and hands-on labs, learners will understand data center history and design principles, the internal layout, and the diverse types of data centers. The course covers power design with redundancy, cooling strategies, and robust hardware considerations (racks, cabling, grounding, flooring, and flooring surfaces). It also delves into core data center components (servers, NAS, switches, routers, load balancers) and their redundancy, as well as data center networks (testing and troubleshooting), device turnup and configuration, monitoring and maintenance, and upgrade planning for components and software.

Students Will Learn

- **Describe the evolution and types of data centers and the high-level architecture of modern**
- **facilities.**
- **Analyze data center layouts, power design with redundancy, cooling strategies, and**
- **mechanical/electrical considerations.**
- **Identify and evaluate data center hardware and components, including racks, cabling, grounding,**
- **and flooring.**
- **Understand data center networks, including testing, troubleshooting, and ensuring redundancy.**
- **Perform basic device turnup, configuration, and validation of data center equipment.**
- **Implement monitoring, maintenance practices, and upgrade planning for components and**
- **software.**
- **Develop practical skills to plan, operate, and troubleshoot a Tier II data center environment.**

Target Audience

IT professionals, network administrators, data center technicians, and facilities staff seeking to deepen their understanding of data center environments and prepare for more advanced operations.

Prerequisites

Completion of Tier I or equivalent foundational IT knowledge (basic networking and data center concepts).

Course Outline

Course 2: Tier II: Understanding Data Center Environments
Module 1: History of Data Centers
Module 2: Overview Inside Data Center
Module 3: Types of Data Centers
Module 4: Data Center Power Design with Redundancy
Module 5: Data Center Heating and Cooling
Module 6: Data Center Hardware (Racks, Cabling, Power, Grounding, Drop Flooring, etc.)
Module 7: Data Center Components (Servers, NAS, Switches, Routers, Load Balancers, and Redundancy)
Module 8: Data Center Networks (Testing & Troubleshooting)
Module 9: Data Center Device Turnup and Configuration
Module 10: Monitoring and Maintenance
Module 11: Upgrading of Components/Software

Delivery Method

Five-day program combining instructor-led lectures with hands-on labs and scenarios. Assessments include hands-on labs, practical exercises, and a final review to confirm comprehension of turnup, configuration, monitoring, and upgrade planning.

Equipment Requirements

(This apply's to our hands-on courses only)

BTS always provides equipment to have a very successful Hands-On course. BTS also encourages all attendees to bring their own equipment to the course. This will provide attendees the opportunity to incorporate their own gear into the labs

and gain valuable training using their specific equipment.

Course Length

5 Days