

I - day course

## Course Overview

The data centre challenge is not just about hardware costs. It is increasingly about reducing energy consumption.

In the early days you may have seen cheap household fans around many data centres being used just to keep things cool. This is no longer sufficient and sophisticated cooling systems now need to be employed. Added to this, the requirement for very high levels of availability mean that standby or duplicated systems are provided for business critical data and applications.

Although hardware performance keeps going up, the performance per watt remains fairly constant, in other words, the total power consumed in data centres is rising. The operational costs of commercial data centres are almost directly proportional to how much power is consumed by the equipment. Worse still, a lot of that power is wasted.

In today's society, organisations are trying to reduce their 'carbon footprint' and saving power is the name of the game in major data centres, even to the extent that many operators turn off the lights in them when no-one is there.

This course looks more closely at the different methods of providing electrical power to a data centre and identifies strategies to minimise the hidden electrical power costs and face the so called IT Power Crisis.

All the Data Centre Courses have been fully updated to take into account the requirements of the 2009 EU Code of Conduct on Data Centres Energy Efficiency.

## Course Content

### The Electricity Supply

- ▶ Where does the electricity come from?
- ▶ Electrical supply options from Supply Company
- ▶ Costs of electrical power
- ▶ Types of Tariff available
- ▶ Comparison of European and American power systems

### Distribution in the Data Centre

- ▶ I-phase AC, 3-phase AC and DC power options
- ▶ Power distribution and associated losses
- ▶ Specifying Power Density
- ▶ Power Density Areas
- ▶ Peak versus Average Power density
- ▶ Harmonic currents and residual losses
- ▶ Emergency power off (EPO)

### Standby Power

- ▶ Standby Generators
- ▶ UPS, batteries and redundant systems (N+0, N+1, N+N)
- ▶ UPS Technologies and Efficiencies

### Methods of reducing power consumption

- ▶ Microprocessor trends
- ▶ Multi-core processors
- ▶ Server Power Tuning And Clustering
- ▶ Virtualisation performance and power consumption
- ▶ Low power networking eg Ethernet backplanes
- ▶ Intelligent PDUs and software simulation



## 100% Theory

### ▶ Qualification

CNet certificate  
BTEC units applied for  
BICSI CEC's Applied for

### ▶ Who Should Attend

Anyone who works or has been selected to work in a data centre.

### ▶ Related Training

CDCDP™ - Certified Data Centre Design Professional  
CDCD™ - Certified Data Centre Design  
CDCT™ - Certified Data Center Technician  
Data Centre Cooling  
Data Centre Management  
BICSI ITS Technician  
BICSI ITS Installer Level 2  
BICSI RCDD  
Fibre Optics in Internal & External Environments  
Advanced Testing of Fibre Systems  
Design & Advanced Testing of Copper Systems

### ▶ Course Objectives

At the end of this course the student will be able to:  
Understand the types of electrical power available  
Understand standby and emergency power options  
Determine options for efficient power distribution  
Highlight areas of waste/savings

### ▶ Prerequisites

BICSI ITS Technician or 3 years + relevant experience

### ▶ Course Location

Bury St Demunds  
Suffolk

