



## CERTIFIED DATA CENTRE ENVIRONMENTAL SUSTAINABILITY SPECIALIST

### Introduction

More data centres are being built, driven by the explosion of data and the processing power required for IoT (Internet of things) sensors and AI (Artificial Intelligence). The percentage of total power consumption by data centres is growing in parallel. It has become vitally important that data centres are optimized for energy efficiency and designed for environmental sustainability.

The CDESS® course is aimed at providing knowledge of the standards and guidelines related to environmental sustainability, and how to move your data centre (existing or new) to a more environmentally sustainable design and operations.

### Audience

The primary audience for this course is any IT, facilities or data centre professional who works in and around the data centre and has the responsibility to achieve and improve the efficiency and environmental sustainability, whilst maintaining the availability and manageability of the data centre.

### Global Accreditation & Recognition



### Prerequisites

Participants must have at least one to two years' experience in a data centre or facilities environment. The CDCP® is highly recommended. The CDESS® will discuss data centre facility aspects and without the CDCP® or equivalent knowledge, the participant may not be able to gain the full benefits of the CDESS® training.

### Course Benefits

After completion of the course the participant will be able to:

- ✓ Understand the impact of data centres on the environment
- ✓ Describe the various environmental/energy management standards
- ✓ Understand the purpose and goals of the legally binding international treaties on climate change
- ✓ Implement various sustainable performance metrics and how to use them in the data centre environment
- ✓ Manage data centre environmental sustainability using international standards
- ✓ Set up the measurement, monitoring and reporting of energy usage
- ✓ Use power efficiency indicators in a variety of data centre designs
- ✓ Use best practices for energy savings in the electrical infrastructure and in the mechanical (cooling) infrastructure
- ✓ Use best practices for energy savings for the ICT equipment and data storage
- ✓ Understand the importance of water management and waste management
- ✓ Understand the different ways to use sustainable energy in the data centre
- ✓ Get practical tips and innovative ideas to make a data centre more sustainable

- **Module 1 – Impact of Data Centres on the Environment**
  - Predictions in 2010
  - Current situation
  - Outlook and commitments
- **Module 2 – What is Environmental Sustainability**
  - The importance of sustainability
  - Senior management commitment
  - Environmental sustainability framework
  - Sustainability policies
  - Performance standards and metrics
  - Information policies
  - Transparency
  - Awareness
  - Service charging models
- **Module 3 – Environmental Management**
  - Environmental sustainability framework (ISO 14001)
  - Standards and guidelines – ISO 50001 / ISO 30134
  - Measurement and categories
  - Baselineing
  - Trend analysis
  - Reporting
- **Module 4 – Power Efficiency Indicators**
  - Various efficiency indicators
  - Power Usage Effectiveness (PUE)
  - PUE measurement levels
  - Factors affecting PUE
  - Measurement points and intervals
  - PUE in mixed source environments
  - Measuring PUE in a mixed-use building
  - PUE reporting
  - Impact of PUE after optimising IT load
- **Module 5 – Electrical Energy Savings (Electrical)**
  - Identifying the starting point for saving energy
  - Sizing of power
  - DC power
  - Generators
  - UPS systems
  - Power Factor (PF)
  - Energy savings on lighting
- **Module 6 – Electrical Energy Savings (Mechanical)**
  - Energy savings on the cooling infrastructure
  - Temperature and humidity setpoints
  - Various energy efficient cooling technologies
  - Energy savings on the airflow
  - Liquid cooling
  - Energy reusage
  - PUE, ERE/ERF and Control Volume
- **Module 7 – Electrical Energy Savings (ICT)**
  - Procurement
  - IT equipment energy efficiency
  - ITEEsv, SMPE, SMPO
  - IT equipment utilisation
  - Server virtualisation
  - Open compute project
- **Module 8 – Electrical Energy Savings (Data Storage)**
  - Data management
  - Data storage management
  - Data storage equipment efficiency
- **Module 9 – Water Management**
  - Water Usage Effectiveness (WUE)
  - Improving WUE
  - Water usage at the power generation source
  - Energy Water Intensity Factor (EWIF)
- **Module 10 – Waste Management**
  - Waste management policies
  - Life-cycle assessment (Cradle to the grave)
  - 3 R's for waste management
  - Reduce
  - Reuse
  - Second-hand market
  - Recycle
- **Module 11 – Sustainable Energy Usage**
  - Sustainable energy sources
  - Power purchase agreements
  - Energy attribute certificates
  - Renewable Energy Factor (REF)
  - Matching renewable energy supply and demand
  - Sustainable energy storage
  - Carbon trading
- **Module 12 – Automated Environmental Management Systems**
  - Use of AI and machine learning
  - Load migration
  - Data Centre Infrastructure Management (DCIM) solutions







## The Company

EPI is a data centre specialist company of European origin operating world-wide in over 60 countries through direct operations and a large partner network. EPI offers an extensive range of data centre services on auditing, certification and training. EPI's focus is on mission-critical, high-availability environments. Established in 1987, EPI has developed an international reputation for delivering high quality technical expertise, with flexible and innovative services, techniques and methodologies.

All our services are aimed at helping our customers to:

- Increase **Availability** of their mission-critical infrastructure
- Improve **Efficiency, Effectiveness and Manageability**
- **Minimise risk** of business interruption

Our Clients share a common need to protect their valuable data, run their mission-critical infrastructure efficiently and to be protected on a 24 x 7 basis. By protecting the interests of our customers, EPI is committed to an intensive program of comprehensive services development backed by engineering and support excellence.

Quality Systems and Procedures have always been at the heart of every stage of our service delivery to ensure consistent and high quality services. We are known for our thoroughness, flexibility and responsiveness. We focus on providing services that fit each organization and each project with a drive to deliver quality on time, every time.

*Let us put our expertise to work for you!*

## Data Centre Services

### Audit & Certification

- Data Centre Standards
  - ANSI/TIA-942
  - EN 50600
  - DCOS®
  - ISO/IEC TS 22237
- Other International Standards
  - ISO 9001
  - ISO 14001
  - ISO 14644
  - ISO/IEC 20000-1
  - ISO 22301
  - ISO/IEC 27001
  - ISO/IEC 27701
  - ISO 37001
  - ISO 45001
  - ISO 46001
  - ISO 50001
  - PCI DSS
- Singapore Standards
  - SS 507
  - SS 564
  - SS 584
  - DTPM
  - CBPR
  - PRP

### Professional Training & Certifications

- Data Centre
  - DCFC®, CDCP®, CDCS®, CDCE®, CNCDP®, CDFOS®, CDFOM®, CDESS®, CDRP®, CDMS®, CTDC®, CTIA®, CTLA®
- IT
  - CITO®, CITM®, CITD®

### Non-Certification Training

- Digital Transformation

### Frameworks

- IT&DCF® - IT & Data Centre Framework
- DCCF® - Data Centre Competence Framework
- DCTF® - Data Centre Training Framework
- ITTF - IT Training Framework

### Standard

- DCOS® - Data Centre Operations Standard



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R22-01

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