Content Community Connection

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Power Factor Training - Improving System Efficiency

View Course Details

COURSE DATES AND TIMES

September 16, 2026

10:00 am - 4:30 pm ET

Why Power Factor Training Matters

Power factor has a direct, measurable impact on the efficiency of electrical systems. When the power factor is low, electrical systems draw more current than necessary to perform useful work, increasing energy losses, heating conductors and equipment, reducing available system capacity, and driving up utility costs. For industrial facilities with large motors, transformers, and variable inductive loads, poor power factor can lead to higher demand charges, reduced equipment life, and unnecessary strain on power distribution systems. Understanding and correcting power factor is therefore not an academic exercise, but a practical requirement for reliable, cost-effective operation.

Course Overview

This 6-hour Power Factor Training course explains the fundamental principles of power factor and why it matters in real industrial environments. Participants learn the relationship between real power, reactive power, and apparent power, and how inductive loads such as motors, drives, and transformers affect system performance. The course explores the different types of power factor and shows how reactive power management, capacitors, and inductive characteristics influence overall system efficiency.

A strong focus is placed on practical power factor correction in facilities with variable and motor-driven loads. Participants examine common correction strategies, including plant-wide capacitor banks and distributed correction methods, and learn how to evaluate the advantages, limitations, and risks of each approach. The course emphasizes correct

application to avoid problems such as over-correction, resonance, and equipment damage.

This Power Factor Training course also covers power factor behaviour in both single-phase and three-phase AC circuits. Participants learn how to calculate power factor and three-phase power, interpret electrical measurements, and apply appropriate correction techniques based on circuit type and load characteristics. These skills help electrical professionals make informed decisions rather than relying on trial-and-error solutions.

Learning Outcomes

• Understand how real, reactive, and apparent power affect power factor
• Identify common causes of low power factor in industrial systems
• Perform basic single-phase and three-phase power factor calculations
• Explain how inductive loads and motors impact power factor
• Compare plant-wide and distributed power factor correction methods
• Apply capacitor-based correction safely and effectively
• Recognize risks such as over-correction and resonance
• Understand how power factor improvement reduces energy costs and system losses

Related Courses

Power Quality Training

WHO SHOULD ATTEND

- Industrial, Commercial, Institutional Electrical Engineers, And Electrical Maintenance Personnel
- Consulting Electrical Engineers
- Project Engineers
- Design Engineers
- Field Technicians
- Electrical Technicians
- Plant Operators
- Plant Engineers
- Electrical Supervisors
- Managers In Charge Of Plant Electrical Infrastructure

STUDENTS RECEIVE

- Power Factor Training Course Certificate
- 0.6 Continuing Education Unit (CEU) Credits (6 Professional Development Hours)
- This Course Includes Our Latest Power Quality And Grounding Handbook!! (Value $20)
- $50 Coupon Toward Any Future Electricity Forum Event (Restrictions Apply)

- FREE Magazine Subscription (Value $25.00)
- Course Materials In PDF Format

COURSE OUTLINE

Power Factor Training Course Outline

Session 1: Introduction & Definitions

- Energy, Power & Power Factor
- Apparent, Real & Reactive Power
- Total Power Factor

Session 2: Problems caused by Low Power Factor

- Electricity costs
- High current and kVA
- Voltage sags
- Infrastructure costs

Session 3: What is your Power Factor?

What is it?

- utility bills
- measurement
- waveforms
- estimation

What causes it to be low?

- Electrical equipment & typical PF
- Typical PF for facilities

Session 4: Improve your Power Factor

Add capacitance

1) Minimum capacitance to add
2) Maximum capacitance to add

Thumb Rules

- Calculate savings/ROI

Session 5: Locating PF Correction

- Benefits of capacitors
- Options for locating capacitors
- Harmonics and Harmonic resonance

Session 6: Application Issues

- Capacitor switching
- Voltage rise
- Harmonics
- Detuned capacitors

Wrap-up

COURSE SCHEDULE:

Start: 10 a.m. Eastern Time
Finish: 4:30 p.m. Eastern Time

Contact us Today for a FREE quotation to deliver this course at your company's location.

Request Quote