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Course Name

Electrical Energy Saving in Industrial & Commercial Utilities

Sector Name

Electrical Engineering

Document Type

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Electrical Energy Saving in Industrial & Commercial Utilities

Course Introduction

Energy management

The fundamental goal of energy management is to produce goods and provide services with the least cost and the least environmental effect. Energy management requires a careful balancing between efforts to use energy efficiently and meet quality of life requirements, while ensuring that primary mission requirements are met. Effective energy management strives to avoid conflicts between the two while achieving substantial energy reductions and cost savings.

To establish a successful energy program, the energy manager must have a good understanding of both the technical and managerial aspects of energy management. An Energy Audit is the key to a systematic approach for decision-making in the area of energy management. In general, an Energy Audit is the translation of conservation ideas into realities, by lending technically feasible solutions with economic and other organizational considerations within a specified time frame. The primary objective of an Energy Audit is to determine ways to reduce energy consumption per unit of product output or to lower operating costs.

Consider electric energy as a product: It is generated, transmitted, distributed, and sold to customers. The end user converts the electric energy into other forms, such as mechanical, thermal, and light energy. The users of electric energy expect a reasonable degree of reliability and quality of service. The quality of service depends on two major effects that result from the interactions among a particular load, other electrical loads, and the supplying system. First, the effect of a certain electric load or cluster of loads on the environment, i.e., on other electrical devices or equipment; Second, the effect the environment has on the performance and life span of the equipment.

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Target Audience

- ✓ Design Engineer
- ✓ Electrical Controls Engineer
- ✓ Electrical Design Engineer
- ✓ Electrical Engineer

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Learning Objectives

- ✓ Understanding energy management and energy saving opportunities in detail.
- ✓ Understanding types and methodologies of energy audits and identification of energy saving opportunities.
- ✓ Analysis of practical energy audit studies and analysis of ways of taking decisions and methods for implementing energy saving measures in integrated buildings.
- ✓ Study of economic and financial factors related to energy management and auditing of projects and programs.
- ✓ Understanding power quality problems and related standards.
- ✓ Detailed analysis of various power quality disturbances, causes, methods of identification & mentoring, mitigation technologies, and equipment.
- ✓ Practical and simulation studies of various power quality problems as affected by both system equipment and topology.
- ✓ Understanding of renewable power resources and technologies as tools for enhancing energy use and power quality.

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Course Outline

✓ DAY 01

Module (01) Energy Saving Management and Audit

- ✓ Definition and Objectives of Energy Management
- ✓ Benefits Of Energy Conservation
- ✓ Energy Management: A Systems Approach
- ✓ Energy Audit – Types and Methodologies
- ✓ Identification of Energy Conservation Opportunities
- ✓ Technical and Economic Feasibility
- ✓ Classification of Energy Conservation Measures
- ✓ Energy Audit Reporting Format

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Course Outline

✓ Day 02

Understanding of Energy Costs

- ✓ Benchmarking and Energy Performance
- ✓ Plant Energy Performance
- ✓ Fuel and Energy Substitution
- ✓ Energy Auditing Equipment

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Course Outline

✓ Day 03

Module (02) Economic and Financial Evaluation of Energy Efficiency

- ✓ Introduction to Energy Efficiency
- ✓ Energy Services Company Model
- ✓ Performance Contracting
- ✓ Energy Efficiency Project Development Process
- ✓ Financial Analysis
- ✓ Risk in Energy Efficiency Projects
- ✓ Finance & Contract Arrangements
- ✓ Creating an ESA
- ✓ International Monitoring & Verification Standards

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Course Outline

✓ Day 04

Module (03) Integrated Building Energy Use and Energy Reduction

- ✓ Site and Massing Considerations
- ✓ Interior Layout/Spatial Design
- ✓ Building Envelope
- ✓ Day-lighting/Sun Control
- ✓ Light Pollution
- ✓ High Performance Lighting
- ✓ Electrical Systems and Equipment
- ✓ Energy Sources
- ✓ Mechanical Systems
- ✓ Energy Load Management

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Course Outline

✓ Day 05

Module (04) Power Quality and Energy System

- ✓ What is Power Quality (PQ)?
- ✓ Power Quality Standards
- ✓ Susceptibility Criteria
- ✓ The electrical environment and causes of PQ Disturbances
- ✓ Classification of Power Quality Disturbances
- ✓ Monitoring Equipment and Techniques
- ✓ Voltage Sags on Utility and Industrial Systems
- ✓ Harmonics, Non-integer Harmonics and Resonance

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Confirmed Sessions

FROM	TO	DURATION	FEES	LOCATION
July 20, 2026	July 24, 2026	5 days	4250.00 \$	UAE , Abu Dhabi
June 22, 2026	June 26, 2026	5 days	5950.00 \$	switzerland , Geneva
Dec. 28, 2026	Jan. 1, 2027	5 days	4250.00 \$	UAE , Abu Dhabi
March 14, 2027	March 18, 2027	5 days	4250.00 \$	KSA , Riyadh

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