



GLOBAL
INDUSTRIES
INTELLIGENCE



CERTIFIED ENERGY

MANAGER CEM

COURSE OUTLINES

Certified Energy Manager (CEM) course typically spans several days and focuses on providing energy professionals with the tools and knowledge to reduce energy consumption and improve energy efficiency across various systems. The outline for a 5-day CEM course generally covers the following topics:

DAY 1: INTRODUCTION AND ENERGY MANAGEMENT FUNDAMENTALS

- **Introduction to Energy Management**
 - Importance of energy management in modern industries
 - Role and responsibilities of an energy manager
 - Overview of the CEM certification process and exam
 - Benefits of energy management practices for organizations and the environment
- **Energy Policy and Strategy**
 - Developing an energy management policy
 - Strategic planning for energy efficiency
 - Energy audits and assessments
 - Setting energy goals and objectives
 - Key performance indicators (KPIs) for energy management

DAY 2: ENERGY AUDITING AND ANALYSIS

- **Energy Audit Procedures**
 - Types of energy audits: Walk-through, investment-grade, and others
 - Tools and techniques for energy audits
 - Identifying energy-saving opportunities
 - Data collection methods and best practices
- **Energy Consumption Analysis**
 - Analyzing energy consumption patterns
 - Using utility bills and meters for analysis
 - Benchmarks for energy performance
 - Identifying inefficiencies in energy usage

DAY 3: ENERGY SYSTEMS AND TECHNOLOGIES

- **HVAC (Heating, Ventilation, and Air Conditioning) Systems**
 - Basics of HVAC system operation and components
 - Optimizing HVAC systems for energy savings
 - Maintenance practices to improve efficiency
- **Lighting Systems**
 - Energy-efficient lighting technologies (LEDs, motion sensors, etc.)
 - Lighting controls and automation
 - Retrofitting and upgrading lighting systems
- **Motors and Drives**
 - Energy-efficient motor systems
 - Variable speed drives and their applications
 - Maintenance strategies for efficient motor operation



- **Building Envelope and Insulation**

- Improving building insulation to reduce heating and cooling needs
- Air sealing and optimizing windows
- Best practices for retrofitting buildings for energy efficiency

DAY 4: ENERGY MANAGEMENT SYSTEMS AND FINANCIAL ANALYSIS

- **Energy Management Systems (EMS)**

- Key components of an EMS
- Role of energy management software
- Implementing an EMS for real-time monitoring and optimization
- Best practices for managing energy data

- **Energy Efficiency Financing**

- Understanding the financial aspects of energy efficiency projects
- Cost-benefit analysis of energy-saving initiatives
- Incentives, rebates, and grants for energy improvements
- Energy performance contracting

- **Regulatory and Environmental Considerations**

- Government regulations and policies on energy use
- Environmental impacts of energy consumption
- Renewable energy and its integration into energy management

DAY 5: ADVANCED TOPICS AND CERTIFICATION EXAM PREPARATION

- **Advanced Energy Efficiency Technologies**

- Renewable energy systems (solar, wind, geothermal, etc.)
- Combined Heat and Power (CHP) systems
- District heating and cooling systems
- Emerging technologies for energy efficiency

- **Case Studies and Best Practices**

- Case studies of successful energy management projects
- Real-world examples of energy savings
- Lessons learned and best practices for implementation

- **Preparation for the CEM Exam**

- Review of key concepts and topics covered in the course
- Test-taking strategies and tips
- Mock exam and discussion of answers

- **Final Assessment and Certification Exam**

- A review of critical energy management concepts
- Completion of the CEM certification exam

This outline provides a comprehensive view of the areas typically covered in a 5-day Certified Energy Manager (CEM) course. The course is designed to be intensive and hands-on, with a strong emphasis on practical application and problem-solving. It prepares participants for the CEM exam while equipping them with the tools needed to manage energy use effectively.

