

BEYOND

SMART CITIES

BUILDING AUTOMATION & CONTROL
SYSTEM - CEM REFRESHER TRAINING

KRISHNAJI PAWAR, LEED AP BD+C, GSAS CGP, ISO 14001:2015, GCP
ENERGY MANAGEMENT SPECIALIST CURRICULUM

CERTIFIED BUILDING AUTOMATION SPECIALIST
• CBAS •

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INTRODUCTION AND COURSE OUTLINE
FOR ENERGY SPECIALISTS

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ONLINE REFRESHER COURSE

BUILDING
AUTOMATION &
CONTROL SYSTEM
CEM REFRESHER
TRAINING

ENERGY SPECIALIST

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WHAT SHOULD YOU LEARN

- Learn Optimization and Safety for Various Energy-Related Systems.
- Understand PID Algorithms, Basic Control Terminology.
- Automation Systems Interoperability and IoT.
- Current Technologies and Hardware and Energy Savings Strategies.
- Energy Management System Functions & Programs for the BAS.
- Building Sustainability through Building Automation.
- Environmental Benefits - Building Automation.
- Best Practices in IoT for Green Building Management.

WHO SHOULD ATTEND

This course is designed to help energy professionals, including energy managers, HVAC engineers, facility and business managers, Building Automation Engineer, BMS professionals, utility officials, consultants, contractors, financial officers, and energy service company professionals become more aware of and effective at identifying and implementing the best energy management strategies.

Building Professionals who want to learn more about Energy Management, BMS Systems and Energy Efficiency.

For those who are starting their journey in the Energy Management, BMS and Energy Efficiency Profession.

Energy or HVAC Commissioning Professionals who want to earn Certified Energy Manager - CEM Credentials.



KEY TAKEAWAYS

Work through practical examples to demonstrate the topics and procedures covered.

Review the various areas of the Body of Knowledge - HVAC Systems with AEE's / BEE's certification exam perspective.

Work through practical examples to demonstrate the topics and procedures covered.

This training program helps to prepares attendees to take the Certified Energy Manager® (CEM®) exam.

One of the most globally respected certifications in the field of energy efficiency and energy management. Gain industry and peer recognition, bring value to your organization and propel your career forward.

Get CERTIFIED ENERGY MANAGER - CEM Credentials in your CV

GET READY TO LEARN NEW
BUILDING AUTOMATION & CONTROL
SYSTEM -CEM REFRESHER TRAINING
AND ENROL NOW!

WHO ARE CERTIFIED ENERGY MANAGERS?



Are you an energy manager looking to validate your experience and knowledge?

Are you a consultant that specializes in improving the energy efficiency of buildings and building systems?

Are you a building owner or manager looking to understand how energy savings can finance your next project?

Are you involved in developing energy efficiency projects, strategies or sustainability programs for your organization or your clients?

WHAT DOES A CEM DO?



A Certified Energy Manager is an individual who optimizes the energy performance of a facility, building, or industrial plant.

The CEM is a systems integrator for electrical, mechanical, process, and building infrastructure, analyzing the optimum solutions to reduce energy consumption in a cost-effective approach.

CEM's are often team leaders and help to develop and implement their organizations' energy management strategies.

CEM's have gained increased recognition within the energy industry and by companies looking to strengthen their competitive position by having responsible energy strategies and sustainable operational practices.



ABOUT AEE



AEE is a Non-profit organization dedicated to serving our members and other industry professionals who are working to improve energy efficiency to save energy, reduce GHGs, make buildings perform better, and help reach global goals for Net-Zero.

Vision : Leading the global energy community to meet the challenges of a clean and sustainable future

Mission : To shape the future of the energy industry through networking, energy awareness, education, training, professional certification and recognition

Energy Managers Since 1977 : Over 28,000 professionals in 105 countries trust the Association of Energy Engineers to promote the interests of those engaged in the energy industry and to foster action for sustainable development.

ABOUT CEM CERTIFICATION



Certified Energy Managers are employed in commercial, government and industrial sectors in job categories, such as Energy Engineering, Building Management, Facility Management, Utility Accounting, Energy Service Performance, Energy Efficiency Consulting, Project Engineering and Resource Efficiency. (REMs)

The Certified Energy Manager® (CEM®) is accredited and globally recognized as the industry leading certification program

AEE creates the Certified Energy Manager® (CEM®) Certification with the first exam held in Atlanta on Monday, October 12, 1981

AEE hosts its first World Energy Engineering Congress (WEEC) ,1978

AEE creates its first Chapters in Atlanta, Chicago, Houston, Kansas City since 1979.

BODY KNOWLEDGE



- ✓ Codes and Standards -----3%-5%
- ✓ Energy Accounting and Economics -----6% -10%
- ✓ Energy Audits and Instrumentation -----8% -12%
- ✓ Electrical Power Systems and Motors -----9%-13%
- ✓ HVAC Systems-----9% -13%
- ✓ Industrial Systems -----6% -8%
- ✓ Building Envelope-----3% -5%
- ✓ CHP Systems and Renewable Energy -----4%-6%
- ✓ Fuel Supply and Pricing -----2%-4%
- ✓ **Building Automation and Control Systems -----7%-11%**
- ✓ Thermal Energy Storage Systems -----2%-4%
- ✓ Lighting Systems -----6% -8%
- ✓ Boiler and Steam Systems -----3% -5%
- ✓ Maintenance and Commissioning -----8%-12%
- ✓ Energy Savings Performance Contracting and Measurement & Verification -----3%-5%

BECOMING A CEM



Work Experience & Education Requirements

Education	Work Experience
4-year engineering/architectural degree OR Professional Engineer (PE) OR Registered Architect (RA)**	AND 3+ Years related* experience
4-year degree in technology, environmental science, physics, or earth science**	AND 4+ years related* experience
4-year degree in business (or related field)**	AND 5+ years related* experience
2-year energy management associate degree**	AND 6+ years related* experience
2-year associate degree**	AND 8+ years related* experience
NONE	AND 10+ years related* experience

*Related experience in energy engineering or energy management. ** OR equivalent degree

CERTIFICATION CEM EXAMS



AEE certification programs require candidates to take and pass an exam. Exam questions are aligned to each program's body of knowledge.

An AEE certification can help define your status as an energy professional and help progress your career. Once complete, make sure you maintain your account and keep track of your certification requirements for renewal.

The exam will be open book, last four hours, and have 130 questions to answer. Of the 130 questions, 120 are scored and 10 randomly located questions are trial questions being prepared for possible use on future exams. The 10 trial questions do not count toward the examinee's score. The trial questions are randomly located and are not identified.

The examination questions are based on the Body of Knowledge listed above. Because of the diversity of background and experience of Energy Managers, the examination has 15 different subject sections, all of which are included in the exam


