Energy Management Institute

Program Portfolio
2024

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A Message from Our Team

Welcome to the Energy Management Institute!

The City of New York remains steadfast in meeting ambitious greenhouse gas reduction goals, ready to seize the moment and tackle a growing climate crisis. The Energy Management Institute (EMI) is delighted to serve public servants in this endeavor, and is proud to provide best-in-class energy management training. From our inception in 2009, we have trained thousands of building operators, designers, engineers, and other energy and sustainability staff, all of whom are integral change agents for the City.

To support in these efforts, this year, EMI is focusing on:

- Leveraging our new state-of-the-art Learning Management System to deploy dynamic and varied training to meet the needs of every City agency employee.
- Strengthening the learner experience and ease-of-access to our courses and top-notch content, making for a cohesive learning experience.
- Demonstrating measurable impacts of our training programs on building operations and energy consumption.

As always, we value your input and encourage you to share any questions or feedback you may have. We believe that open communication is key to our continuous improvement and ensuring that our courses meet your expectations.

Whether you are joining us in the classroom or participating in virtual training, we look forward to an engaging and rewarding year ahead.

For more information about the City's energy management initiatives, you can visit the DCAS Energy Management page. Additionally, you can find more details about our program on our webpage: https://emi-cuny.geniussis.com/ or reach out to us via email at EMItraining@sps.cuny.edu.

Thank you for being a part of EMI's journey towards a sustainable and energy-efficient future for New York City. Together, let's make a difference!

Best,
The EMI Team

City University of New York, School of Professional Studies
Department of Citywide Administrative Services, Division of Energy Management

About the EMI Program

The Energy Management Institute (EMI) is a training program offered by the Department of Citywide Administrative Services' (DCAS) Division of Energy Management (DEM) in collaboration with the City University of New York's School of Professional Studies (CUNY SPS), CUNY Building Performance Lab (CUNY BPL), and the City's Citywide Training Center (CTC).

New York City has ambitious climate mitigation goals, and aggressive reduction of greenhouse gas emissions is a key strategy. Since energy use in buildings is a major source of emissions, building and energy management staff have a critical role in reducing energy. Through training, EMI helps empower City staff to make energy-smart decisions, implement operational improvements, and advocate for energy retrofits and clean energy projects across the City's portfolio.

Today, through EMI, DEM offers a diverse set of courses that provide targeted competency-based training and integrate national certification requirements. The courses are led by experienced practitioners in the field. They are open to all City staff, free of charge.

Who should take EMI courses?
While many EMI courses are geared towards building operators and facilities management staff, there are offerings suitable for all staff involved in energy management in City buildings.

What is a typical virtual EMI session experience like?
EMI courses range in length from half-day workshops to months-long courses. Depending on the course, there may be up to 20 students per class. EMI's virtual sessions are instructor-led, and students participate using virtual training technology (Zoom). Most sessions will still take the same amount of time as an in-person training, and sessions will still have the same expectations on project deadlines, exams, and class participation, such that the program complies with third-party certification requirements.

How do I know which EMI course is right for me?
Staff can also select the courses that are right for them based on the following factors: breadth of topics covered as it relates to their job responsibilities, certifications required, level of in-going expertise, and time commitment to course. Please see the Learning Paths section on page 70.

What do City staff need to do to participate in an EMI course?
To participate, potential students should complete the following five steps:

- **Enroll:** To enroll in an EMI course, potential students first should seek and receive permission to participate in the course from their direct supervisor(s). They should then register online before the course's designated start date.
- **Participate:** Students should attend sessions, complete online modules and exams, if applicable, and do required assignments and projects. For tips on how to successfully participate in a virtual session, go to page 7.
- **Provide feedback:** Students should complete in-session and post-session evaluations to provide feedback on their experience. EMI uses this information to improve the course for future students.
- **Take any necessary certification exams:** CUNY SPS helps City staff complete their paperwork to take certification exams and receive credentials. DEM provides funding for City staff to take credential exams one time.
- **Apply lessons learned:** Students are expected to work towards implementing the energy management best practices that they have learned, at their agencies.

What is the time commitment for the courses?

Some EMI courses are multi-day, while others are a single day or less. Each EMI course has different requirements for time spent in and outside of class to conduct research, develop projects, complete online learning modules and reading assignments, and prepare for exams. The **Time Commitment to Course (TCC)**, can be classified as **Low** (up to 7 hours per week or only one day), **Medium** (up to 10 hours per week or one full week), or **High** (up to 15 hours per week over multiple weeks, and/or includes a certification exam).

When are EMI courses offered?

EMI courses are offered according to a Fall and Spring semester schedule and take place during standard working hours. In addition, DEM offers select courses during Learning Fairs.

How can I register online?

EMI accepts online applications for courses via the **online registration portal**. Click the "Create Account" button on the homepage of the portal to begin the registration process. City employees are required to keep their profile information (e.g., agency, supervisor, and contact information) updated.

What other important information about EMI do I need to know?

Registration Guidelines

City employees should refer to their agency's training guidelines and must obtain their supervisor's (and, depending on their agency, their training liaison's and HR department's) approval before participating in EMI courses. EMI will notify supervisors upon verification of eligibility and final enrollment, but City employees must obtain supervisor approval before registration. See pages 72 and 73 for the complete EMI registration guidelines.

Course Enrollment Cancellation Policy

If a City employee registers for an EMI course but drops out before the course starts, CUNY SPS must receive the request to cancel enrollment in writing <u>at least seven business days</u> before the confirmed start date. Agencies (i.e., supervisors, training liaisons) are strongly recommended to designate a qualified participant for substitution before the course starts. Failure to do so may result in City employees being unable to enroll for future courses.

Course Attendance Policy

City employees participating in an EMI course are expected to attend all scheduled sessions and arrive by the scheduled start time. **Excessive lateness or absences will result in the employee being dropped from the course.** In the event of an emergency, illness, or other unforeseen circumstances which would prevent them from attending a session or taking a scheduled exam, course participants are expected to contact their course instructor and the program manager assigned to their course and make any necessary arrangements to complete missed assignments/ exams prior to the next class. City employees are not permitted to participate in training while out on annual leave or disability.

Course Academic Integrity Policy

CUNY SPS and DEM are committed to upholding CUNY's Academic Integrity Policy. To this end, students are expected to submit assignments that reflect their own individual efforts and to seek support directly from the course instructor when they encounter challenges with the course requirements. Students who submit work that has been copied from other students or sources will be penalized and withdrawn from the course. Unless otherwise indicated by the course instructor, group projects will not be accepted. For more information, please visit: http://sps.cuny.edu/acad_policies/ acad_integrity.html.

🔔 No-shows, Late Withdrawals, and Mid-course Drops

A no-show, late withdrawal, or mid-course drop, effectively resulting in uncompleted training, represents a misallocation of training spots that could have been redirected to another public servant. These instances could adversely affect other City staff's ability to equitably access these energy training and professional development opportunities in the future.

We strongly encourage City staff to:
✓ Before signing up, please fully review the course description, schedule, and time commitment to confirm if the course topic and duration are right for you.
✓ Once accepted into the course, please fully participate in, and complete all classes, coursework, and examinations.

Moving forward, <u>the EMI Program reserves the right to decline course registration requests</u> due to previous history of repetitive no-shows or withdrawals.

Accessing EMI Online Materials

Students can access online instructional materials through a dedicated portal, Blackboard Learning Management System (LMS). Students will be able to access course materials on the LMS once they are approved for a course.

What are the Learning Fairs?

During the Learning Fairs, DEM and CUNY SPS offer half-day courses over an extended period before certification renewal deadlines. Learning Fairs are designed to serve both (1) City staff who hold either BOC-1 or BOC-2 credentials and want to maintain their active credentials and (2) City staff who seek to expand their energy management knowledge in specific areas, but do not necessarily have those credentials.

Can City staff contribute to EMI course development?

Yes! DEM, CUNY SPS, and other partners work together to update courses to include the newest developments and technologies. We are always looking for subject matter experts (SMEs) to contribute to course development. If you are interested in supporting EMI as a SME, please contact the DEM Program Manager.

Are EMI courses the only energy-related training that DEM provides?

No! In addition to the training opportunities offered through EMI, DEM also offers three other energy management training options to City staff to support their professional development. In particular:

- **Customized energy management training available for agency staff using ExCEL funding:** City agencies can apply for competitive expense funding to offer specialized energy-related training to their staff through the ExCEL Program. Previously, DEM has focused on funding manufacturer-specific, hands-on training through ExCEL, as distinct from the broader overview training provided through EMI. Generally, DEM-funded Agency Energy Personnel (AEPs) lead the preparation of proposals for ExCEL-funded training.

- **In-house training directly offered by DEM:** DEM also directly provides select training in-house on specific topics core to our work. DEM continues to work on refining the set of in-house training that we offer. However, we generally provide EC3 and EnerTrac training on a quarterly basis.

- **Energy-related training videos:** In addition, DEM has worked with CUNY SPS to develop a range of energy-related training videos for City staff. The full collection of training videos is available through the DEM Videos website.

If you have questions about ExCEL-funded, in-house, or video training opportunities, please contact the DEM Program Manager.

Who can I contact if I have further questions?

DEM EMI Team

Gretel Guivelondo, *Sr. Program Manager, Training and Workforce Development*
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CUNY SPS EMI Team

Michelle Attles, *Program Director*
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Ensuring a Successful Virtual Learning Experience

You should expect quality learning delivered by SMEs and experienced instructors; however, you should also expect to assume responsibility for your own learning.

EMI's virtual classroom setting is similar to a traditional classroom environment, in that most sessions are instructor-led, and everyone participates live at the same time using virtual training platforms. Most sessions will still take the same amount of time as an in-person training, and sessions will still have the same expectations on project deadlines, exams, and class participation, such that the program complies with third-party certification requirements.

Video Participation
Video participation is required during EMI's virtual sessions in order to promote interaction and engagement with your instructors, classmates and the course topics. To participate in EMI courses, **participants must have a working built-in camera or webcam.** Mobile devices/tablets do not have the necessary features for participation in the course activities and are not permitted.

Minimum Requirements for Zoom
Supported Operating Systems:
- Windows 7 or newer version;
- macOS X with macOS 10.9 or later;
- Other supported Operating Systems.
Supported Browsers:
- Windows: Internet Explorer 11+, Edge 12+, Firefox 27+, Chrome 30+;
- macOS: Safari 7+, Firefox 27+, Chrome 30+;
- Linux: Firefox 27+, Chrome 30+;
- Other supported browsers.

For more information about Zoom's Minimum Technology Requirements, please visit the System Requirements for Zoom page.

Before the session
- **Test your equipment.** EMI courses have minimum technology requirements so participants can be successful in a course, which include: a computer or laptop, reliable internet connection, working camera and microphone.
- **Learn the technology.** Most EMI courses will be deployed through Zoom, and we encourage you to attend EMI-led Zoom orientation / walkthrough sessions to familiarize yourself with the platforms prior to the first class. Additional resources are:
  - How To Join a Zoom Meeting
  - How to configure Zoom Audio/Video
  - How to use Zoom Meeting Controls

During the session
- **Prioritize your learning.** Identify a conducive learning space in your home or work location, and as much as possible, refrain from working on other tasks during the class.
- **Participate and connect.** Use the Zoom platform features to engage with your instructors and fellow learners. All participants are highly encouraged to add to the discussion, as learners usually find value hearing their colleagues' real-world work experience.
- **Communicate if you experience technical issues**, have further questions, or encounter external concerns that impact your participation, please let the instructor and program manager know. We will work with you to troubleshoot or identify possible accommodations.

After the session
- **Share feedback.** Provide honest responses about your virtual training experience through surveys or course evaluations.
- **Continue learning.** Take advantage of virtual learning opportunities, such as other EMI courses, DCAS CTC courses and external webinars and conferences.
- **Apply your new skills.** The City has just invested time and money on your training. We hope you are ready and confident to play your part in supporting the citywide energy reduction goals!

Spring 2024 Course Schedule

COURSES	TRAINING DATES
Building Operator Certification, Level 1**	**Cohort C (Dept. of Education staff only):** February 7, 14, 28, March 6, 13, 20, 27, April 3, 17, May 8, 22, and June 5
ASHRAE Instructor-Led Webinars	**ASH90.1-2022 Starting the Path to Net Zero Buildings:** January 24 and 25
	V in HVAC – What, Why, Where, How, and How Much: March 5
	Introduction to Building Decarbonization: March 26
	Operations & Maintenance of High-Performance Buildings: May 1 and 2
	Guideline 36: Best in Class HVAC Control Sequences: May 7
Certified Building Commissioning Professional (CBCP)**	March 18, 19, 20, 21, and 22
Certified Energy Manager (CEM)**	April 1, 2, 3, 4, and 5
Introduction to the Passive House Standard	April 9
GPRO Operations and Maintenance Essentials**	April 15 and 16
Introduction to Passive House Retrofits	April 30
Certified Energy Auditor (CEA)**	May 13, 14, 15, 16, and 17
Retrofit Now! Reducing Carbon and Complying with LL97	May 21, 23, 28, and 30
Project Management for Energy Engineers and Energy Managers	May 29 and 30
Renewable Energy 101*	June 3, 4, 5, 6, and 7
Building Re-tuning Training and Coaching	**Summer 2024 Cohort C:** May 16, 30, June 13, 27, July 11, 25, August 8 and 22
NEEC BOC Webinars	*Self-paced, available through March 15*
Fundamentals of Building Systems	*Self-paced*

*hybrid format
**fully in-person

Course Descriptions

Fundamentals of Building Systems

NYC energy and climate goals, principles of building systems

self-paced

This cohort is fully online. Please see the next page for the technology requirements.

Course Structure

Fundamentals is designed to provide foundational energy management knowledge for City staff. It provides an overview of critical building systems and equipment, including their relationship to energy consumption; explains electrical and mechanical engineering concepts pertinent to building operations; and introduces best practices for energy efficiency in City buildings. The course prepares students without a technical background to succeed in Building Operator Certification, Level 1.

Fundamentals is a self-directed course consisting of 11 self-paced online modules, as well as a pre- and post-assessments to allow learners to better evaluate their own knowledge gains. The online modules cover the following: the building envelope; the science of building systems; HVAC, plumbing, and electrical building systems; building controls; occupant controls; maintenance; risks; codes, zones, and regulatory requirements; environmental factors; and wrapping modules before and after. To successfully complete the course, students must finish all self-paced modules; take pre- and post-learning assessments; and submit a course evaluation.

Target Audience

Fundamentals is designed for City staff who do not have building operations, energy management, or similar technical background. In most cases, Fundamentals is a pre-requisite for non-building operators who seek to complete BOC-1. It can also be used as a light refresher for staff who have primary job responsibility for managing building operations at their facility and/or extensive working knowledge of building systems and equipment before taking BOC-1.

Learning Path

Fundamentals is mapped to the **foundational category** relative to EMI's suggested **learning paths**. The **time commitment to course (TCC)** is **LOW** (up to seven hours a week, or, courses that only run for one day).

Fundamentals of Building Systems

Semester(s)	Fall and Spring
Duration	self-paced
Day	self-paced
Location	self-paced
Time Commitment to Course (TCC)	Low
Renewal Points/Hours	8
Minimum Technology Requirements (for virtual participation)	Headphones OR Headset (Required) Online Broadband (non-secured) bandwidth of 3 Mbps. A wired connection is highly recommended. Instructors and staff will actively check your progress throughout the course and reserve to right to decline issuance of a certificate of completion should virtual attendees not actively participate based on the rules above.

To enroll, potential students should apply through EMI's [online registration portal]

Building Operator Certification Level 1 (BOC-1)

building systems, efficient operations, energy data

four months

third-party certification

Please see the next page for the location and the list of minimum technology requirements.

Course Structure
BOC-1 is the foundational energy efficiency course for building operators working in City facilities. It is designed to help building operators identify opportunities to make their facilities more energy efficient so they can contribute to meeting City energy and emissions reductions goals. BOC-1 provides an overview of building systems and equipment, including electrical systems, mechanical systems, lighting technologies, and building controls. It also introduces students to energy data management and analysis and operational improvements that can improve energy efficiency and occupant comfort.

BOC-1 consists of 12 sessions taught by subject matter experts over a four-month (18-week) period, complemented by 14 self-paced online modules. To successfully complete the course, students must attend all live online and in person sessions and complete all online modules; take and pass four module-specific exams; and submit four practical project assignments focused on applying concepts learned in class to the facilities where they work. Students who do so can pursue the BOC-1 certification from the Northwest Energy Efficiency Council (NEEC). CUNY SPS and NEEC will work together to assist City staff in completing their paperwork for the credential and taking the certification exam. See the course syllabus here.

Target Audience
BOC-1 is open to building operators, facilities management staff, and other energy management staff working in City buildings. The course is especially well-suited to the following:

- Building operators who may have limited formal building systems training, but have substantial on-the-job experience with building systems.
- Energy management staff who have received some energy efficiency training and are seeking to deepen their understanding of building system and equipment concepts. Energy management staff are encouraged to take the Fundamentals course before enrolling in BOC-1.
- In most cases, the Fundamentals course is a pre-requisite for non-building operators who seek to complete BOC-1.

Learning Path
BOC-1 is mapped to the **building operations** category relative to EMI's suggested learning paths. The **time commitment to course (TCC)** is **HIGH** (up to 15 hours a week over multiple weeks, or, courses that include a certification exam that requires further subject matter study).

BOC-1

Semester(s)	Fall 2023 (for all agencies) and Fall 2023/Spring 2024 (for DOE only)
Duration	12 sessions over a span of four months
Day	Please refer to the [course schedule](#)
Location	*General Agencies:* 24th Floor, Citywide Training Center, 1 Centre Street, New York, NY 10007
	DOE: Local 891 Training Center at the Brooklyn Navy Yard, Building 292, Suite 401, Unit 358, 63 Flushing Avenue, Brooklyn, NY 11205
Time Commitment to Course (TCC)	High
Renewal Points/Hours	76
Minimum Technology Requirements (for virtual participation)	Computer or Laptop (Required for DOE staff) Microphone & Speakers/Headphones OR Headset (Required)
	Re: virtual courses: Instructors and staff will actively monitor your attendance and reserve to right to decline issuance of a certificate of completion should virtual attendees not actively participate based on the rules above.
	Re: in-person courses: Instructors and staff will actively monitor your attendance and reserve to right to decline issuance of a certificate of completion if you are a no-show for a significant number of in-person sessions.

To enroll, potential students should apply through EMI's [online registration portal](#)

Building Operator Certification Level 2 (BOC-2)

high-performance operations, system calibration, troubleshooting

seven months

third-party certification

This cohort is fully in-person. Please see the next page for the class location.

Course Structure

BOC-2 offers advanced training to City staff who meet the enrollment pre-requisites and want to further their building energy management skills. BOC-2 is comprised of six core modules: (1) Best Practices for High-Performance Operations and Maintenance; (2) Sensors, Calibration, and Transmitters; (3) HVAC Controls Optimization; (4) Energy Strategies: Control Sequences of Operation; (5) Electrical Maintenance and Troubleshooting; and (6) Boiler Plant and Hydronic System High-Performance O&M.

BOC-2 consists of 22 synchronous online + in person sessions taught by subject matter experts over a seven-month (30-week) period, complemented by 10 self-paced online modules. The course also includes activities guided by subject matter experts and learning coaches. To successfully complete the course, students must attend all sessions and complete all online modules; take and pass module-specific exams; and submit practical project assignments focused on applying concepts learned in class to the facilities where they work. Students who do so can pursue the BOC-2 certification from the Northwest Energy Efficiency Council (NEEC). CUNY SPS and NEEC work

together to assist City staff in completing their paperwork for the credential and for taking the certification exam. See the course syllabus here.

Target Audience

BOC-2 is designed for students who have previous intensive energy management training or experience. Specifically, it is meant for students who have successfully completed BOC-1 and/or are Certified Building Operators (CBOs), Certified Energy Managers (CEMs), Certified Building Commissioning Professionals (CBCPs), or Certified Energy Auditors (CEAs). On a case-by-case basis, students may be able to substitute other advanced training or experience for these credentials; please reach out to CUNY SPS to request enrollment permission.

Learning Path

BOC-1 is mapped to the **building operations** category relative to EMI's suggested learning paths. The **time commitment to course (TCC)** is **HIGH** (up to 15 hours a week over multiple weeks, or, courses that include a certification exam that requires further subject matter study)**.**

BOC-2

Semester(s)	Not offered this fiscal year
Duration	22 sessions over a span of seven months
Day	N/A
Time	N/A
Location	N/A
Time Commitment to Course (TCC)	High
Renewal Points/Hours	158
Minimum Technology Requirements (for virtual participation)	Webcam (Required) Microphone & Speakers/Headphones OR Headset (Required) Online Broadband (non-secured) bandwidth of 3 Mbps. A wired connection is highly recommended. Complete System Requirements for Zoom Re: virtual courses: Instructors and staff will actively monitor your attendance and reserve to right to decline issuance of a certificate of completion should virtual attendees not actively participate based on the rules above. Re: in-person courses: Instructors and staff will actively monitor your attendance and reserve to right to decline issuance of a certificate of completion if you are a no-show

To enroll, potential students should apply through EMI's online registration portal

Building Re-tuning Training and Coaching

⚒ **building re-tuning, trend chart analysis, system optimization**

🕐 **four months**

Please see the next page for the list of minimum technology requirements.

Course Structure
Building Re-Tuning Training and Coaching (BRTC) is an eight (8) session course that spans two lecture-based trainings and six hands-on coaching sessions. This course is designed to teach building operators, chief engineers and anyone else who works closely with the day-to-day operation of a City-building, how to understand, interpret, and optimize a building's operation using data, engineering insight, and tools provided through the course. Please note that BRTC was formerly named Load Management Training and Coaching (LMTC) and will consist of many of the same principles.

Target Audience
BRTC is open to building operators, chief engineers and anyone else who works closely with the day-to-day operation of a City-building where the following is strongly encouraged: (1) Have successfully completed BOC-1; (2) Are assigned to and/or are responsible for at least one agency building where major equipment can be controlled; and (3) Able to access trend logging functions in a building automation or management system (BAS/BMS) throughout the duration of the course.

Learning Path
This course is mapped to the **load management** category relative to EMI's suggested learning paths. The **time commitment to course (TCC)** is **MEDIUM** (up to seven hours a week, or, courses that only run for one day)**.**

BRTC

Semester(s)	Fall 2023 and Spring 2024
Duration	Eight sessions over a span of four months (one session a week, every other week)
Days	Please refer to the [course schedule](#)
Location	Virtual via Zoom
Time Commitment to Course (TCC)	Medium
Renewal Points/Hours	28
Minimum Technology Requirements	Webcam (Required) Microphone & Speakers/Headphones OR Headset (Required) Online Broadband (non-secured) bandwidth of 3 Mbps. A wired connection is highly recommended. [Complete System Requirements for Zoom](#) Instructors and staff will actively monitor your attendance and reserve to right to decline issuance of a certificate of completion should virtual attendees not actively participate based on the rules above.

To enroll, potential students should apply through EMI's [online registration portal](#)

Note on Participation Approval and Cohort Selection

Please note that DCAS Division of Energy Management (DEM) may prioritize staff at agencies that have recently completed energy efficiency projects. If Agency Energy Personnel seek to enroll in this training offering, they should confirm that at least one building operator from their agency also will attend.

DEM will work to confirm both that potential students meet the prerequisites for the training offering and that their buildings are good candidates for BRTC participation. Following this process, DEM's BRT staff and CUNY SPS will place students in the most suitable cohort, such that they can participate alongside other staff from their own or similar agencies.

Certified Energy Manager (CEM)

- high-performance ops, maintenance and commissioning, M&V
- one week
- third-party certification

This cohort is fully in-person. Please see the next page for the class location.

Course Structure

This course enables students to obtain the Certified Energy Manager (CEM) credential by preparing and registering them for the CEM certification exam, offered by the Association of Energy Engineers (AEE). CEM operates as a standard for qualifying energy professionals in the United States and abroad. It is recognized by the U.S. Department of Energy, the Office of Federal Energy Management Programs, and numerous state energy offices, utilities, corporations, and energy service companies.

The course consists of four instructional sessions taught by subject matter experts and a full-day comprehensive certification exam. The five-day course is offered over a one-week period. To successfully complete the course, students must meet the stated eligibility criteria; attend all instructional sessions; submit an exam application form before sitting for the exam (provided during the prep period); and pass the four-hour, written, open-book CEM exam. See the course syllabus here.

Target Audience

CEM is an advanced training and certification course designed for students who have previous intensive energy management training or experience. DEM will give preference to students who have successfully completed both BOC-1 and BOC-2, but accommodate other qualified students as space permits. Students seeking to substitute other advanced training or experience for BOC-1 or BOC-2 should reach out to CUNY SPS to request enrollment permission. All students must meet AEE's combined education-experience eligibility requirements summarized on the next page (i.e., they can qualify under any one of the six qualification pathways).

Learning Path

CEM is mapped to the **AEE certification** category relative to EMI's suggested learning paths. The **time commitment to course (TCC)** is **HIGH** (up to 15 hours a week over multiple weeks, or, courses that include a certification exam that requires further subject matter study).

Certified Energy Manager

Semester(s)	Fall 2023 and Spring 2024
Duration	Four sessions + one half day for the scheduled certification exam
Day	Please refer to the course schedule
Location	CUNY School of Professional Studies, 119 W 31st St, New York, NY 10001
Time Commitment to Course (TCC)	High
Renewal Points/Hours	33

Education and Experience Requirements for Certification

4-yr. degree in Engineering or Architecture	AND 3+ yrs. experience in energy engineering or energy management
4-yr. degree in Environmental Science or Physics	AND 4+ yrs. experience in energy engineering or energy management
4-yr. degree in Business (or related field)	AND 5+ yrs. experience in energy engineering or energy management
2-yr. degree in Energy Management	AND 6+ yrs. experience in energy engineering or energy management
2-yr. degree in a technical topic	AND 8+ yrs. experience in energy engineering or energy management
No specific educational background	AND 10+ yrs. experience in energy engineering or energy management

To enroll, potential students should apply through EMI's online registration portal

🔔 **Important Certification Exam Guidance**

Examination scheduling
Participants must take the certification exam on the scheduled date. Participants who apply to retake the course as a "refresher" prior to taking the exam will not be approved by DCAS.

Examination retest
EMI only funds for one round of certification exam, which is included in this course. Participants who fail the exam can retest at their own expense. The retest fee for paper and pencil exams held with live trainings and remote computer-based exams is $250. For more information, go to www.aeecenter.org/aee-certifications/certification-faqs/#retest.

Certified Energy Auditor (CEA)

🔧 energy use and economic analysis, energy auditing

🕐 one week

🏅 third-party certification

This cohort is fully in-person. Please see the next page for the class location.

Course Structure

This course enables students to take the Certified Energy Auditor (CEA) certification exam, which is offered by the Association of Energy Engineers (AEE). CEA operates as a standard for qualifying energy professionals in the United States and abroad; the CEA course is designed to provide participants with an in-depth, technical review of energy auditing. A CEA is an individual who evaluates and analyzes how energy is being used in a facility and identifies energy conservation opportunities and makes recommendations where consumption can be reduced and optimized.

The CEA course consists of four in-person instructional sessions taught by subject matter experts and one (1) day for the comprehensive certification exam, administered on the fifth day. To successfully complete the course, students must meet the stated eligibility criteria and pass an open book examination.

Target Audience

CEA is an advanced training and certification course designed for students who have intensive energy management and energy auditing training or experience. Energy managers, energy auditors, senior stationary engineers, engineers, architects, project managers, construction project managers, and trades supervisors are encouraged to enroll. DEM will give preference to students who have successfully completed both BOC-1 and BOC-2, but accommodate other qualified students as space permits. Students seeking to substitute other advanced training or experience for BOC-1 or BOC-2 should reach out to CUNY SPS to request enrollment permission. All students must meet AEE's combined education experience eligibility requirements summarized on the next page.

Learning Path

CEM is mapped to the **AEE certification** category relative to EMI's suggested learning paths. The **time commitment to course (TCC)** is **HIGH** (up to 15 hours a week over multiple weeks, or, courses that include a certification exam that requires further subject matter study)**.**

Certified Energy Auditor (CEA)

Semester	Spring 2024
Duration	Four sessions + one half day for the scheduled certification exam
Day	Please refer to the course schedule.
Location	CUNY School of Professional Studies, 119 W 31st St, New York, NY 10001
Time Commitment to Course (TCC)	High
Renewal Points/Hours	33

Education and Experience Requirements for Certification

Bachelor's degree OR Professional Engineer (PE) OR Registered Architect (RA)	AND 3+ yrs. experience in energy auditing and/or participating in team doing energy assessments
4-yr. unrelated degree	AND 5+ yrs. experience in energy auditing and/or participating in team doing energy assessments
2-yr. associate degree	AND 5+ yrs. experience in energy auditing and/or participating in team doing energy assessments
Current Status of Certified Energy Manager (CEM)	AND 3+ yrs. experience in energy auditing and/or participating in team doing energy assessments
No specific educational background	AND 10+ yrs. experience in energy auditing and/or participating in team doing energy assessments

To enroll, potential students should apply through EMI's online registration portal

Important Certification Exam Guidance

Examination scheduling
Participants must take the certification exam on the scheduled date. Participants who apply to retake the course as a "refresher" prior to taking the exam will not be approved by DCAS.

Examination retest
EMI only funds for one round of certification exam, which is included in this course. Participants who fail the exam can retest at their own expense. The remote computer-based exam retest fee for CEA is $250. For more information, go to www.aeecenter.org/aee-certifications/certification-faqs/#retest.

Certified Building Commissioning Professional (CBCP)

🔧 building systems design, install, and testing, commissioning

🕐 one week

🏅 third-party certification

This cohort is fully in-person. Please see the next page for the class location.

Course Structure

The CBCP course focuses on commissioning principles, practices, and technologies and prepares individuals to take the Certified Building Commissioning Professional ("CBCP") certification exam, which is offered by the Association of Energy Engineers ("AEE"). CBCP is a standard to qualify individuals involved in commissioning equipment and systems in buildings and facilities. Building commissioning professionals ensure that new building systems are designed, installed, tested, and capable of being operated and maintained according to the owner's intent, requirements, and operational needs. They lead, plan, coordinate and document the commissioning process on commercial and industrial buildings, and interact with commissioning teams and field personnel such as contractors, vendors, testing agencies, and auditors. They may also manage renovations, upgrades, and tune-up of systems to restore existing buildings to high productivity and improved efficiency.

The CBCP course consists of four in-person instructional sessions taught by subject matter experts and one (1) day for the comprehensive certification exam, administered on the fifth day. To successfully complete the course, students must meet the stated eligibility criteria and pass an open book examination.

Target Audience

CBCP is an advanced training and certification course designed for students who have intensive energy management and building commissioning experience. Energy managers, energy auditors, senior stationary engineers, engineers, architects, energy project managers, and construction project managers are encouraged to enroll. DEM will give preference to students who have successfully completed both BOC-1 and BOC-2, but accommodate other qualified students as space permits. Students seeking to substitute other advanced training or experience for BOC-1 or BOC-2 should reach out to CUNY SPS to request enrollment permission. All students must meet AEE's combined education experience eligibility requirements summarized on the next page.

Learning Path

CBCP is mapped to the **AEE certification** category relative to EMI's suggested learning paths. The **time commitment to course (TCC)** is **HIGH** (up to 15 hours a week over multiple weeks, or, courses that include a certification exam that requires further subject matter study)**.**

Certified Building Commissioning Professional (CBCP)

Semester	Spring 2024
Duration	Four sessions + one half day for the scheduled certification exam
Day	Please refer to the course schedule.
Location	CUNY School of Professional Studies, 119 W 31st St, New York, NY 10001
Time Commitment to Course (TCC)	High
Renewal Points/Hours	33

Education and Experience Requirements for Certification

Bachelor's degree in science, engineering, architecture, business, law, or finance OR Professional Engineer (PE) OR Registered Architect (RA)	AND 3+ yrs. related* experience
4-yr. unrelated degree	AND 5+ yrs. related* experience
2-yr. associate degree	AND 5+ yrs. related* experience
No specific educational background	AND 10+ yrs. related* experience
Current Status of Certified Energy Manager (CEM)	

*Facilities management, HVAC or process engineering design, construction project management, electrical/controls design, installation or operations, testing, adjusting and balancing, or building commissioning.

To enroll, potential students should apply through EMI's online registration portal

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🔔 Important Certification Exam Guidance

Examination scheduling
Participants must take the certification exam on the scheduled date. Participants who apply to retake the course as a "refresher" prior to taking the exam will not be approved by DCAS.

Examination retest
EMI only funds for one round of certification exam, which is included in this course. Participants who fail the exam can retest at their own expense. The remote computer-based exam retest fee for CBCP is $200. For more information, go to www.aeecenter.org/aee-certifications/certification-faqs/#retest.

Project Management for Energy Engineers and Energy Managers Training Program

project management, energy project formulation

two days

This cohort is fully online. Please see the next page for the technology requirements.

Course Structure

This program delves quickly into best practices in project management that have been learned, vetted, and proven from over 30 years of project and program management experience in diverse industrial and commercial settings. Participants will get the opportunity to learn lessons that are seldom covered in textbooks and are often only acquired through experience. First-hand insight into the "A to Z of management for energy projects" and an introduction to commercially available project management programs/tools will be provided. Participants will be exposed to all phases of project implementation and execution, beginning with the formulation, vetting, and acceptance of the project objectives followed quickly by commissioning and project closure. Examples of typical large projects – with budgets exceeding 0.5 million dollars and schedules extending over many months – are also reviewed.

The course consists of two half-day sessions taught by a subject matter expert. To successfully complete the course, students must attend all sessions.

Target Audience

This course is designed for energy engineers and managers, as well as maintenance engineers and managers. However, this course is also available for technical writers, procurement professionals, and others involved in developing and executing energy management projects.

Learning Path

The Project Management for Energy Engineers and Energy Managers Training Program is mapped to the **Specialized Training** category relative to EMI's suggested learning paths. The **time commitment to course (TCC)** is **MEDIUM** (up to 10 hours a week, or courses that only run for one week)**.**

Project Management for Energy Engineers and Energy Managers Training Program

Semester	Spring 2024
Duration	Two half-day sessions (totaling eight hours)
Day	Please refer to the course schedule
Location	Virtual via Zoom
Time Commitment to Course (TCC)	Medium
Renewal Points/Hours	8
Minimum Technology Requirements	Webcam (Required) Microphone & Speakers/Headphones OR Headset (Required) Online Broadband (non-secured) bandwidth of 3 Mbps. A wired connection is highly recommended. Complete System Requirements for Zoom Instructors and staff will actively monitor your attendance and reserve to right to decline issuance of a certificate of completion should virtual attendees not actively participate based on the rules above.

To enroll, potential students should apply through EMI's online registration portal

Renewable Energy 101

renewable energy technologies, installation, O&M fundamentals

one week

third-party certification

This cohort is hybrid, meaning some days are in-person. Please see the next page for the location and the list of minimum technology requirements.

Course Structure

Renewable Energy 101 provides City staff with an introduction to renewable energy technologies in the context of the City's clean energy goals. As the City prepares to meet the 100 MW solar installation goal as set forth in "One City: Built To Last" as well as the recent passage of Local Law 92 and 94 which requires green roofs or solar photovoltaic (PV) systems on the City's new construction and renovation projects, City agencies must be prepared to have a well-informed workforce that can provide operations and maintenance support for current and upcoming renewable energy installations. This introductory course will equip interested employees with the knowledge to advocate for, implement and maintain renewable energy technologies, especially on solar PV.

The course covers an overview of renewable energy technologies and policies; solar site scoping, installation and O&M fundamentals; as well as new technologies and battery storage. It consists of three (3) online instructor-led and two (2) in-person sessions facilitated by subject matter experts, which includes lecture, activities, a hands-on lab and a field trip to a local solar installation. Participants who complete the course will receive 18 NABCEP CEUs towards PV Associate or PV Installation Professional exams. See the course syllabus here.

Target Audience

This course is open to building operators, facilities management staff, and other relevant energy management staff in City buildings who support the installation, maintenance, and monitoring of solar PV and other renewable energy systems.

Learning Path

This course is mapped to the **specialized training** category relative to EMI's suggested learning paths. The **time commitment to course (TCC)** is **MEDIUM** (up to 10 hours a week, or, courses that only run for one week)**.**

Renewable Energy 101

Semester(s)	Spring 2024
Duration	Five sessions over a span of one week
Day	Please refer to the course schedule
Location	Room 418 at the New York City College of Technology 300 Jay St, Brooklyn, NY 11201 and virtual via Zoom
Time Commitment to Course (TCC)	Medium
Renewal Points/Hours	30
Minimum Technology Requirements	Webcam (Required) Microphone & Speakers/Headphones OR Headset (Required) Online Broadband (non-secured) bandwidth of 3 Mbps. A wired connection is highly recommended. Complete System Requirements for Zoom Instructors and staff will actively monitor your attendance and reserve to right to decline issuance of a certificate of completion should virtual attendees not actively participate based on the rules above.

To enroll, potential students should apply through EMI's online registration portal

Retrofit Now! Reducing Carbon and Complying with LL97

🔧 **building retrofitting concepts, NYC local law 97 overview**

🕐 **two weeks**

This cohort is online. Please see the next page for the list of minimum technology requirements.

Course Structure

Retrofit Now! Reducing Carbon and Complying with LL97 gives architects and other designers the insight they need to design for deep energy retrofits that help buildings meet NYC's new building code, improve building letter grades, and comply with LL 97 mandates. Agencies will find the course valuable in discussing options with their planning and design teams as they do their long-term capital planning. This course is offered and delivered by CUNY Building Performance Lab (BPL).

The Retrofit Now! course consists of four half-day sessions for a total of fourteen (14) hours, delivered in four days of virtual instructional sessions. To successfully complete the course, students must attend all classes.

Target Audience

Retrofit Now! is open to building operators, facilities management staff, and other relevant energy management staff in City buildings.

Learning Path

This course is mapped to the **specialized training** category relative to EMI's suggested learning paths. The **time commitment to course (TCC)** is **MEDIUM** (up to 10 hours a week, or, courses that only run for one week)**.**

Retrofit Now! Reducing Carbon and Complying with LL97

Semester	Fall 2023
Duration	Four sessions over a span of two weeks
Day	Please refer to the course schedule
Location	Virtual via Zoom
Time Commitment to Course (TCC)	Medium
Renewal Points/Hours	14
Minimum Technology Requirements	Webcam (Required) Microphone & Speakers/Headphones OR Headset (Required) Online Broadband (non-secured) bandwidth of 3 Mbps. A wired connection is highly recommended. Complete System Requirements for Zoom Instructors and staff will actively monitor your attendance and reserve to right to decline issuance of a certificate of completion should virtual attendees not actively participate based on the rules above.

To enroll, potential students should apply through EMI's online registration portal

GPRO Operations and Maintenance Essentials

evaluating building performance, efficiency measures

two days

This cohort is fully in-person. Please see the next page for location information.

Course Structure

In the GPRO Operations and Maintenance Essentials training, students learn how to implement sustainable building operations using best practices and create a personalized action plan. The program provides practical tools to measure building performance and strategies to cut energy consumption and costs. By the end of the training, students will be able to take a systemic approach to building operations, assess building performance, and outline three actionable steps to improve efficiency. Moreover, students will gain the ability to explain the costs and benefits of efficiency measures, fostering a comprehensive understanding of sustainable building practices.

This course consists two full-day sessions. After completing the training, participants can earn a GPRO O&M Certificate by passing a 50-question multiple choice exam. Participants can also gain access to short on-demand bonus courses on topics such as financing energy projects, interpreting energy audits, NYC Local Law 97 and more. To successfully complete the course, students must attend all class sessions.

Target Audience

This course is ideal for building operators, facilities management staff, and other relevant energy management staff in City buildings.

Learning Path

This course is mapped to the **building operations training** category relative to EMI's suggested learning paths. The **time commitment to course (TCC)** is **MEDIUM** (up to 10 hours a week, or, courses that only run for one week)**.**

GPRO Operations and Maintenance Essentials

Semester	Spring 2024
Duration	Two full-day sessions
Day	Please refer to the course schedule
Location	CUNY School of Professional Studies, 119 W 31st St, New York, NY 10001
Time Commitment to Course (TCC)	Medium
Renewal Points/Hours	12

To enroll, potential students should apply through EMI's online registration portal

Introduction to the Passive House Standard

passive house principles,
architectural design

half day

This cohort is online. Please see the next page for the list of minimum technology requirements.

Course Structure

Passive House goals and methodology change the way architects and builders think and work, making the architectural design itself a driver of climate, health, and social solutions. This is a 4-hour course that dives into the basic principles, history, certification, and the new frontiers of Passive House design as it continues to challenge and change industry expectations. All theory is then illustrated through several case studies outlining specific Passive House principles. By the end of this course, participants will be able to outline the basic principles of the Passive House Standard, outline the history of the Passive House Standard, and cite specifics of a few Passive House case studies.

The course structure consists of one four-hour session taught by a subject matter expert. To successfully complete the course, students must be present during the class session.

Target Audience

Passive House introductory courses are open to building operators, facilities management staff, and other relevant energy management staff in City buildings.

Learning Path

This course is mapped to the **specialized training** category relative to EMI's suggested learning paths. The **time commitment to course (TCC)** is **MEDIUM** (up to 10 hours a week, or, courses that only run for one week)**.**

Introduction to the Passive House Standard

Semester	Spring 2024
Duration	One half-day session (four hours)
Day	Please refer to the course schedule
Location	Virtual via Zoom
Time Commitment to Course (TCC)	Low
Renewal Points/Hours	4
Minimum Technology Requirements	Webcam (Required) Microphone & Speakers/Headphones OR Headset (Required) Online Broadband (non-secured) bandwidth of 3 Mbps. A wired connection is highly recommended. Complete System Requirements for Zoom Instructors and staff will actively monitor your attendance and reserve to right to decline issuance of a certificate of completion should virtual attendees not actively participate based on the rules above.

To enroll, potential students should apply through EMI's online registration portal

Introduction to Passive House Retrofits

building retrofitting concepts, passive house concepts

half day

This cohort is online. Please see the next page for the list of minimum technology requirements.

Course Structure
The Passive House standard is not just for new construction. In this course, participants learn how existing structures can benefit from retrofits to move a structure from a low to high-performance building.

Applying the passive house standard to existing structure has its own unique challenges. Participants can take a look at the passive house standard from the perspective of retrofitting existing structures. Through case studies of successful retrofits, participants will see how to upgrade a building with respect to airtightness, insulation, thermal bridge reductions, high-performance windows, and ventilation. Participants will also learn about the EnerPHit standards and process.

The course structure consists of one four-hour session taught by a subject matter expert. To successfully complete the course, students must be present during the class session.

Target Audience
Passive House introductory courses are open to building operators, facilities management staff, and other relevant energy management staff in City buildings.

Learning Path
This course is mapped to the **specialized training** category relative to EMI's suggested learning paths. The **time commitment to course (TCC)** is **MEDIUM** (up to 10 hours a week, or, courses that only run for one week)**.**

Introduction to Passive House Retrofits

Semester	Spring 2024
Duration	One half-day session (four hours)
Day	Please refer to the course schedule
Location	Virtual via Zoom
Time Commitment to Course (TCC)	Low
Renewal Points/Hours	4
Minimum Technology Requirements	Webcam (Required) Microphone & Speakers/Headphones OR Headset (Required) Online Broadband (non-secured) bandwidth of 3 Mbps. A wired connection is highly recommended. Complete System Requirements for Zoom Instructors and staff will actively monitor your attendance and reserve to right to decline issuance of a certificate of completion should virtual attendees not actively participate based on the rules above.

To enroll, potential students should apply through EMI's online registration portal

ASHRAE | High-Performance Building Design: Applications and Future Trends

new technologies and designs, future trends in high-performance buildings

half-day

This cohort is online. Please see the next page for the list of minimum technology requirements.

Course Structure

The High-Performance Building Design: Applications and Future Trends course presents the applications of new technologies and design concepts to help to achieve high-performance buildings, including net-zero / nearly net-zero buildings, as well as future trends in store (e.g., smart grid, smart buildings, "future proofing" design, resiliency). Along with the technical aspects of high-performance buildings, the course will also examine high-performance building design from both a technical perspective and from the perspective of investors, allowing for a more well-rounded understanding of all the different players involved. Finally, the course will delve into the future of high-performance buildings and how ASHRAE Standards address these important themes.

The course consists of a three-hour online workshop taught by ASHRAE instructors. You can find out more information about it here.

Target Audience

This course is designed for those with a background in energy management. Beyond this, it is also available for individuals with similar experience such as technicians, design engineers, facility managers, and building operators.

Learning Path

High-Performance Building Design is mapped to the **building operations training category** for facility managers and building operators within EMI's suggested learning paths. The **time commitment to course (TCC) is LOW** as it is a course that only runs for half a day.

High-Performance Building Design: Applications and Future Trends

Semester	Fall 2023
Duration	One half-day session (totaling three hours)
Day	Please refer to the course schedule
Location	Virtual via GoToMeeting
Time Commitment to Course (TCC)	Low
Renewal Points/Hours	3
Minimum Technology Requirements	Webcam (Required) Microphone & Speakers/Headphones OR Headset (Required) Online Broadband (non-secured) bandwidth of 3 Mbps. A wired connection is highly recommended. Complete System Requirements for GoToMeeting Instructors and staff will actively monitor your attendance and reserve to right to decline issuance of a certificate of completion should virtual attendees not actively participate based on the rules above.

To enroll, potential students should apply through EMI's online registration portal

ASHRAE | Energy Modeling Best Practices and Applications

modeling principles, life cycle cost analysis, valuable quality control

two days

This cohort is online. Please see the next page for the list of minimum technology requirements.

Course Structure
Energy Modeling Best Practices and Applications covers the fundamentals of building energy modeling and explains how to use modeling to guide design decisions. This is a software-neutral training that enables participants to understand how to integrate modeling into the design process, starting from the programming stage to post-occupancy and measurement and verification (M&V). Particularly, the course will explore modeling principles and tips related to building envelopes, plug loads, lighting systems, and HVAC systems. Finally, Energy Modeling will appropriate methods for presenting results and the appropriate use of modeling throughout the project life cycle and its cost analysis.

The course consists of two online half-day workshops taught by ASHRAE instructors. You can find out more information about it here.

Target Audience
This course is designed for energy managers and engineers, building industry professionals, architects, and LEED® accredited professionals. However, Energy Modeling is also available for building operators and facility managers who have some background in this area and want to learn more about this subject matter.

Learning Path
Energy Modeling Best Practices and Applications is mapped to the **specialized training category** for engineers and project managers along with facility managers and building operators within EMI's suggested learning paths. The **time commitment to course (TCC) is LOW** as it is a course that only runs for one day.

Energy Modeling Best Practices and Applications

Semester	Not offered this fiscal year
Duration	Two half-day sessions (totaling six hours) in a span of one week
Day	Please refer to the course schedule
Location	Virtual via GoToMeeting
Time Commitment to Course (TCC)	Low
Renewal Points/Hours	6
Minimum Technology Requirements	Webcam (Required) Microphone & Speakers/Headphones OR Headset (Required) Online Broadband (non-secured) bandwidth of 3 Mbps. A wired connection is highly recommended. Complete System Requirements for GoToMeeting Instructors and staff will actively monitor your attendance and reserve to right to decline issuance of a certificate of completion should virtual attendees not actively participate based on the rules above.

To enroll, potential students should apply through EMI's online registration portal

ASHRAE | Introduction to BACnet®

BACnet® implementation, testing and certification, BIBBS and interoperability specification

half-day

This cohort is online. Please see the next page for the list of minimum technology requirements.

Course Structure
The Introduction to BACnet® course helps students understand elements required to successfully plan for BACnet implementation, including issues that must be addressed to achieve interoperability. This course will explain what BACnet is and how it works, including the basic components of any multi-vendor or multi-discipline BACnet control system. Of note, the capacity to merge different systems using BACnet, including integrating older systems with BACnet®-based systems, will also be discussed.

The course consists of a three-hour online workshop taught by ASHRAE instructors. You can find out more information about it here.

Target Audience
This course is designed for design engineers, energy managers, building operators, facility managers, as well as technicians and architects.

Learning Path
Introduction to BACnet is mapped to the **specialized training category** for design engineers and technicians, as well as building operators and energy managers within EMI's suggested learning paths. The time **commitment to course (TCC) is LOW** as it is a course that only runs for half a day.

Introduction to BACnet®

Semester	Not offered this fiscal year
Duration	One half-day session (totaling three hours)
Day	Please refer to the course schedule
Location	Virtual via GoToMeeting
Time Commitment to Course (TCC)	Low
Renewal Points/Hours	3
Minimum Technology Requirements	Webcam (Required) Microphone & Speakers/Headphones OR Headset (Required) Online Broadband (non-secured) bandwidth of 3 Mbps. A wired connection is highly recommended. Complete System Requirements for GoToMeeting Instructors and staff will actively monitor your attendance and reserve to right to decline issuance of a certificate of completion should virtual attendees not actively participate based on the rules above.

To enroll, potential students should apply through EMI's online registration portal

ASHRAE | Improving Existing Building Operation

HVAC maintenance and optimization, ASHRAE standards, improved management strategies

three days

This cohort is online. Please see the next page for the list of minimum technology requirements.

Course Structure

The Improving Existing Building Operations course offers a well-rounded knowledge of the proper operation and maintenance of existing HVAC systems. The course focuses on the importance of proper operation and maintenance of existing HVAC systems to increase building performance, with a strong emphasis on meeting multiple ASHRAE standards and guidelines (e.g., ASHRAE Standard 100, 105, 14). This training equips attendees with the techniques to assess existing building performance to make their facilities operate more efficiently and economically.

The course consists of three half-day online sessions (totaling 12 hours), taught by ASHRAE Fellows and instructors. You can find out more information about it [here](#).

Target Audience

The intended audience for this course includes building operators, facility and energy managers, and design engineers.

Learning Path

Building Operation's is mapped to the **building operations training category** for facility managers and building operators within EMI's suggested [learning paths](#). The time commitment to course (TCC) is **MEDIUM**.

Improving Existing Building Operation

Semester	Fall 2023
Duration	Three half-day sessions (totaling twelve hours) in a span of one week
Day	Please refer to the course schedule
Location	Virtual via GoToMeeting
Time Commitment to Course (TCC)	Medium
Renewal Points/Hours	12
Minimum Technology Requirements	Webcam (Required) Microphone & Speakers/Headphones OR Headset (Required) Online Broadband (non-secured) bandwidth of 3 Mbps. A wired connection is highly recommended. Complete System Requirements for GoToMeeting Instructors and staff will actively monitor your attendance and reserve to right to decline issuance of a certificate of completion should virtual attendees not actively participate based on the rules above.

To enroll, potential students should apply through EMI's online registration portal

ASHRAE | Operations & Maintenance of High-Performance Buildings

interdependency between energy, maintenance, and operations, defining high-performance buildings, making the business case for changes within existing buildings

two days

This cohort is online. Please see the next page for the list of minimum technology requirements.

Course Structure
The Operations & Maintenance of High-Performance Buildings course offers practical insights regarding the operation and maintenance (O&M) practices for both standard and high-performance buildings. This course discusses the interdependency between energy efficiency and operations & maintenance and provides actionable tips on finding and addressing O&M opportunities.

The course consists of two half-day workshops, including an interactive group project to reinforce concepts such as (1) how to identify and define energy and maintenance management metrics, and (2) how to make the business case for changes to an existing building and its systems. You can find out more information about it here.

Target Audience
The intended audience for this course includes building operators, energy and facility managers, and design engineers. Specifically, the course would be most beneficial to staff with three to ten years of experience interested in focusing on O&M for high-performance buildings.

Learning Path
The Operations & Maintenance of High-Performance Buildings course is mapped to the **building operations category** for facility and energy managers, building operators and design engineers within EMI's suggested learning paths. The time commitment to course (TCC) is LOW.

Operations & Maintenance of High-Performance Buildings

Semester	Spring 2024
Duration	Two half-day sessions (totaling six hours) in a span of one week
Day	Please refer to the course schedule
Location	Virtual via GoToMeeting
Time Commitment to Course (TCC)	Low
Renewal Points/Hours	6
Minimum Technology Requirements	Webcam (Required)
	Microphone & Speakers/Headphones OR Headset (Required)
	Online Broadband (non-secured) bandwidth of 3 Mbps. A wired connection is highly recommended.
	Complete System Requirements for GoToMeeting
	Instructors and staff will actively monitor your attendance and reserve to right to decline issuance of a certificate of completion should virtual attendees not actively participate based on the rules above.

To enroll, potential students should apply through EMI's online registration portal

ASHRAE | Air-to-Air Energy Recovery Fundamentals

ASHRAE and AHRI standards, commercially available technologies

half-day

This cohort is online. Please see the next page for the list of minimum technology requirements.

Course Structure
Air-to-air energy recovery provides one of the most cost-effective and efficient ways to recycle waste energy and create superior indoor environments. This course introduces recommendations in the latest ASHRAE and AHRI standards, codes and guidelines with respect to air-to-air energy recovery technology to help determine where and when energy recovery is mandated and why. This course also provides a detailed overview of the most popular commercially available technologies on the market today and explores their construction, psychrometrics, thermodynamic theory of operation, and important operations and maintenance considerations for long life and consistent performance.

Engineers, designers and other professionals who are interested in learning all about air-to-air energy recovery and receiving practical guidance on where and when to use different technologies for different applications should attend this course. By the end of the course, participants will be able to better evaluate the performance of these devices and will be able to identify the advantages of each technology to help solve practical problems in meeting ventilation requirements while delivering optimal performance.

Target Audience
This course is open to building operators, facilities management staff, and other relevant energy management staff in City buildings.

Learning Path
This course is mapped to the **foundational training** category relative to EMI's suggested learning paths. The **time commitment to course (TCC)** is **LOW.**

Air-to-Air Energy Recovery Fundamentals

Semester	Fall 2023
Duration	One three-hour session
Day	Please refer to the course schedule
Location	Virtual via GoToMeeting
Time Commitment to Course (TCC)	Low
Renewal Points/Hours	3
Minimum Technology Requirements	Webcam (Required) Microphone & Speakers/Headphones OR Headset (Required) Online Broadband (non-secured) bandwidth of 3 Mbps. A wired connection is highly recommended. Complete System Requirements for GoToMeeting Instructors and staff will actively monitor your attendance and reserve to right to decline issuance of a certificate of completion should virtual attendees not actively participate based on the rules above.

To enroll, potential students should apply through EMI's online registration portal

ASHRAE | Air-to-Air Energy Recovery Applications: Best Practices

IEQ and energy efficiency, DOAS, practical applications

half-day

This cohort is online. Please see the next page for the list of minimum technology requirements.

Course Structure

Air-to-air energy recovery is a very cost-effective and efficient way to recycle waste energy and create superior indoor environments. This course will review real-world examples of where and how air-to-air energy recovery technologies are integrated into some of the most commonly used commercially available systems. Particular configurations that are most commonly used in high-performance buildings and how they can best be used to meet stretch goals for IEQ and energy efficiency and thermal comfort will be examined with respect to established performance metrics, peak performance results and annual energy savings.

A variety of different dedicated outdoor air systems, neutral air systems and enhanced dehumidification strategies (with single and multiple heat exchangers) will be examined in detail, along with the advantages and important considerations for using air-to-air energy recovery in many different applications. Best practices for mechanical design, exchanger selection and control strategies will be discussed throughout.

Participants who should attend this course are interested in learning how to evaluate different DOAS systems incorporating air-to-air energy recovery and how to avoid common errors in equipment design while simultaneously being able to evaluate these systems beyond just peak performance.

Target Audience

This course is open to building operators, facilities management staff, and other relevant energy management staff in City buildings.

Learning Path

This course is mapped to the **trades-focused training** category relative to EMI's suggested learning paths. The **time commitment to course (TCC)** is **LOW.**

Air-to-Air Energy Recovery Applications: Best Practices

Semester	Fall 2023
Duration	One three-hour session
Day	Please refer to the course schedule
Location	Virtual via GoToMeeting
Time Commitment to Course (TCC)	Low
Renewal Points/Hours	3
Minimum Technology Requirements	Webcam (Required) Microphone & Speakers/Headphones OR Headset (Required) Online Broadband (non-secured) bandwidth of 3 Mbps. A wired connection is highly recommended. Complete System Requirements for GoToMeeting Instructors and staff will actively monitor your attendance and reserve to right to decline issuance of a certificate of completion should virtual attendees not actively participate based on the rules above.

To enroll, potential students should apply through EMI's online registration portal

ASHRAE | Commissioning Process in New / Existing Buildings

overview of commissioning benefits and specifications

two days

This cohort is online. Please see the next page for the list of minimum technology requirements.

Course Structure

This introductory course focuses on how the building commissioning process can be applied cost-effectively to new construction and to existing facilities, with a strong emphasis on existing facilities applications. In this course, students will learn the fundamentals of the commissioning process through each step of a new construction project from predesign to occupancy and operations. Students will also learn how the application of the commissioning process in existing facilities differs from new construction.

The course approaches the benefits of commissioning and how the process can improve the built environment, reduce environmental impacts through responsible resource utilization, improve the quality of design and construction, and raise the professional reputation of the entire commissioning team. The course also discusses commissioning documentation, including an overview of commissioning specifications for new construction. Students taking this course will take away compelling information and case studies that demonstrate the value of investing in the commissioning process.

Target Audience

This course is open to building operators, facilities management staff, and other relevant energy management staff in City buildings.

Learning Path

The Commissioning Process in New/Existing Buildings course is mapped to the **building operations category** for facility and energy managers, building operators and design engineers within EMI's suggested learning paths. The time commitment to course (TCC) is LOW.

Commissioning Process in New / Existing Buildings

Semester	Fall 2023
Duration	Two half-day sessions (totaling six hours) in a span of one week
Day	Please refer to the course schedule
Location	Virtual via GoToMeeting
Time Commitment to Course (TCC)	Low
Renewal Points/Hours	6
Minimum Technology Requirements	Webcam (Required) Microphone & Speakers/Headphones OR Headset (Required) Online Broadband (non-secured) bandwidth of 3 Mbps. A wired connection is highly recommended. Complete System Requirements for GoToMeeting Instructors and staff will actively monitor your attendance and reserve to right to decline issuance of a certificate of completion should virtual attendees not actively participate based on the rules above.

To enroll, potential students should apply through EMI's online registration portal

ASHRAE | Guideline 36: Best in Class HVAC Control Sequences

HVAC system types, energy efficiency, thermal comfort, and indoor air quality

half-day

This cohort is online. Please see the next page for the list of minimum technology requirements.

Course Structure

ASHRAE Guideline 36, High-Performance Sequences of Operation for HVAC Systems, was created to develop and maintain best-in-class standardized HVAC control sequences. This guideline is all about the concept of "less is more." It allows engineers to reduce engineering time by adapting standard sequences already proven to perform. It minimizes programming and commissioning time for contractors.

ASHRAE Guideline 36 reduces energy consumption, cost, and system downtime with more resilient systems, control sequence compliance, and diagnostic software. The guideline also promotes communication between specifiers, contractors, and operators by creating a language of common terms.

This course introduces the current version of ASHRAE Guideline 36. The discussion will include the research underlying the current sequences and ongoing and planned future research intended to develop additional advanced sequences for other HVAC system types.

In this course, attendees will learn about the ASHRAE Guideline 36 sequences and how they improve energy efficiency, thermal comfort, and indoor air quality. Attendees will also learn how to

specify sequences for this guideline.

Target Audience

This course is open to building operators, facilities management staff, and other relevant energy management staff in City buildings.

Learning Path

This course is mapped to the **trades-focused training** category within EMI's suggested learning paths. The time commitment to course (TCC) is **LOW**.

Guideline 36: Best in Class HVAC Control Sequence

Semester	Spring 2023
Duration	One three-hour session
Day	Please refer to the course schedule
Location	Virtual via GoToMeeting
Time Commitment to Course (TCC)	Low
Renewal Points/Hours	3
Minimum Technology Requirements	Webcam (Required)
	Microphone & Speakers/Headphones OR Headset (Required)
	Online Broadband (non-secured) bandwidth of 3 Mbps. A wired connection is highly recommended.
	Complete System Requirements for GoToMeeting
	Instructors and staff will actively monitor your attendance and reserve to right to decline issuance of a certificate of completion should virtual attendees not actively participate based on the rules above.

To enroll, potential students should apply through EMI's online registration portal

ASHRAE | V in HVAC – What, Why, Where, How, and How Much

HVAC systems, ventilation, ASHRAE Standard 62.1-2019

half-day

This cohort is online. Please see the next page for the list of minimum technology requirements.

Course Structure

This course teaches the basics of the ventilation and provides the current concepts behind the new ANSI/ASHRAE Standard 62.1-2019, Ventilation for Acceptable Indoor Air Quality. Ventilation (V) is the third leg in the three-legged stool of HVAC. What is ventilation, why do we ventilate, where does ANSI/ASHRAE Standard 62.1 apply, how must ventilation air be distributed, and how much air do we need? Topics will include minimum requirements for cleaning outdoor air, designing HVAC systems, determining the ventilation rate quantity, commissioning, and operations and maintenance.

This course focuses on the basic requirements of ASHRAE Standard 62.1-2019 and covers the scope, application, and multiple compliance paths available in the standard, including the ventilation rate procedure, indoor air quality procedure, and natural ventilation procedure. Many of the standard's general requirements apply regardless of the procedure used. The different application conditions for the ventilation rate procedure are also described, along with changes particular to the 2019 version of ANSI/ASHRAE Standard 62.1. This course is highly recommended for all HVAC designers and engineers.

Target Audience

This course is open to building operators, facilities management staff, and other relevant energy management staff in City buildings. .

Learning Path

This course is mapped to the **trades-focused training** category relative to EMI's suggested learning paths. The **time commitment to course (TCC)** is **LOW.**

V in HVAC – What, Why, Where, How, and How Much

Semester	Spring 2024
Duration	One three-hour session
Day	Please refer to the course schedule
Location	Virtual via GoToMeeting
Time Commitment to Course (TCC)	Low
Renewal Points/Hours	3
Minimum Technology Requirements	Webcam (Required) Microphone & Speakers/Headphones OR Headset (Required) Online Broadband (non-secured) bandwidth of 3 Mbps. A wired connection is highly recommended. Complete System Requirements for GoToMeeting Instructors and staff will actively monitor your attendance and reserve to right to decline issuance of a certificate of completion should virtual attendees not actively participate based on the rules above.

To enroll, potential students should apply through EMI's online registration portal

ASHRAE | Introduction to Building Decarbonization

electrification opportunities, offset strategies

half-day

This cohort is online. Please see the next page for the list of minimum technology requirements.

Course Structure
The Introduction to Building Decarbonization course describes the primary sources for carbon emissions in buildings and explains the key drivers for decarbonization. Carbon accounting options in buildings, current offset strategies, and electrification technology applications are discussed. Case studies are offered to demonstrate real-world applications as well as US and world statistics.

The course consists of an online three-hour long workshop taught by ASHRAE instructors. You can find out more information about it here.

Target Audience
The intended audience for this course includes building operators, facilities management staff, and other relevant energy management staff in City buildings.

Learning Path
The Introduction to Building Decarbonization course mapped to the **specialized training category** for engineers and project managers along with facility managers and building operators within EMI's suggested learning paths. The time commitment to course (TCC) is LOW as it is a course that only runs for one day.

Introduction to Building Decarbonization

Semester	Fall 2023 and Spring 2024
Duration	One three-hour session
Day	Please refer to the course schedule
Location	Virtual via GoToMeeting
Time Commitment to Course (TCC)	Low
Renewal Points/Hours	3
Minimum Technology Requirements	Webcam (Required) Microphone & Speakers/Headphones OR Headset (Required) Online Broadband (non-secured) bandwidth of 3 Mbps. A wired connection is highly recommended. Complete System Requirements for GoToMeeting Instructors and staff will actively monitor your attendance and reserve to right to decline issuance of a certificate of completion should virtual attendees not actively participate based on the rules above.

To enroll, potential students should apply through EMI's online registration portal

ASHRAE | ASH90.1-2022: Starting the Path to Net Zero Buildings

Net Zero Carbon Emission Code

two days

This cohort is online. Please see the next page for the list of minimum technology requirements.

Course Structure
In January 2023, ASHRAE released the latest version of its benchmark energy efficiency standard, Standard 90.1-2022, Energy Efficiency Standard for Sites and Buildings Except Low-Rise Residential Buildings. New requirements to Standard 90.1 aims to meet the needs of the design community and keep the standard pertinent, as demand grows for reduced energy use and carbon emissions. This version begins the standard's move toward becoming a Net Zero Carbon Emission Code by 2031.

This course dives deep into the new Standard 90.1's additional requirements, which are above the prescriptive requirements but contain many options for compliance (such as a minimum requirement for on-site renewable energy, as well as new guidance for using carbon emissions, site energy, or source energy as alternative performance metrics to the current energy cost metrics). The course explores ways that the new Standard 90.1 can reduce energy usage in buildings, and how participants can use these strategies to move toward net zero energy use. The course consists of two half-day workshops. You can find out more information about it here.

Target Audience
The intended audience for this course includes building operators, facilities management staff, and other relevant energy management staff in City buildings.

Learning Path
The ASH90.1-2022: Starting the Path to Net Zero Buildings course mapped to the **specialized training category** for engineers and project managers along with facility managers and building operators within EMI's suggested learning paths. The time commitment to course (TCC) is LOW as it is a course that only runs for one day.

ASH90.1-2022: Starting the Path to Net Zero Buildings

Semester	Fall 2023
Duration	Two half-day sessions (totaling six hours)
Day	Please refer to the course schedule
Location	Virtual via GoToMeeting
Time Commitment to Course (TCC)	Low
Renewal Points/Hours	6
Minimum Technology Requirements	Webcam (Required) Microphone & Speakers/Headphones OR Headset (Required) Online Broadband (non-secured) bandwidth of 3 Mbps. A wired connection is highly recommended. Complete System Requirements for GoToMeeting Instructors and staff will actively monitor your attendance and reserve to right to decline issuance of a certificate of completion should virtual attendees not actively participate based on the rules above.

To enroll, potential students should apply through EMI's online registration portal

BOMI-HP® | High Performance Sustainable Buildings

High-performance building investments, market dynamics, resource management concepts, sustainable contracting and vendor management principles

up to 90 hours

This cohort is online. Please see the next page for the list of minimum technology requirements.

Course Structure

The BOMI-HP® Designation program provides learners with an in-depth understanding of how to define, initiate, pay for, complete, and obtain a return on investment for sustainable initiatives within all segments of a building or portfolio. This program meets the growing demand in the marketplace for comprehensive sustainability and energy-efficient programs.

- *Course 1: High-Performance Sustainable Building Principles* provides a comprehensive overview of high-performance sustainable buildings and exposes students to the critical components of sustainability where building systems and the ecosystem intersect. As industry professionals, students will gain insight into understanding and tackling building performance issues that impact local environmental issues and global climate change; integrating high-performance building standards and guidelines; identifying and overcoming the hurdles to achieving true high-performance; and attaining top-to-bottom organizational buy-in for sustainable building initiatives.
- *Course 2: High-Performance Sustainable Building Practices* identifies the critical no-cost and low-cost sustainable initiatives that every building professional can start implementing now. Throughout this course, students will learn how to effectively optimize and apply sustainable best practices, which cover every aspect of the built environment, to drive operational efficiencies for a high-performance building.
- *Course 3: High-Performance Sustainable Building Investments* delivers the strategies needed for building a business case for high-performance investments. Students will practice bundling social, environmental, and economic factors, fully integrating all facets of the triple bottom line. By leveraging analysis tools such as ROI, NPV, and IRR, students will be equipped to promote and gain buy-in for sustainability and high performance investment projects. You can find more information about it here.

Target Audience

This course is open to all interested City energy management staff and building operators.

Learning Path

This course is mapped to the **specialized training category** for energy and project managers along with facility managers and building operators within EMI's suggested learning paths. The **time commitment to course (TCC) is HIGH.**

BOMI High Performance Sustainable Buildings

Semester(s)	Fall 2023 and Spring 2024
Duration	Self-directed over 13 weeks
Day	Please refer to the course schedule
Location	Self-directed online
Time Commitment to Course (TCC)	High
Renewal Points/Hours	90
Minimum Technology Requirements	Speakers/Headphones OR Headset (Required) Online Broadband (non-secured) bandwidth of 3 Mbps. A wired connection is highly recommended.

To enroll, potential students should apply through EMI's online registration portal

NEEC Electrification and Building Operations

electrification best practices and opportunities, maintenance and troubleshooting

one day

This cohort is online. Please see the next page for the list of minimum technology requirements.

Course Structure

The NEEC Electrification and Building Operations course examines how electrification is increasingly a part of a building operator's responsibility. The course provides an overview of the fundamentals of electrification technologies, including implementation benefits and barriers, as well as maintenance and troubleshooting of key assets and systems. Applicable best practices, standards and incentives that are moving buildings away from the use of fossil fuels and to 100% electric equipment are also reviewed.

The course consists of one full-day workshop. You can find out more information about it here.

Target Audience

The intended audience for this course includes building operators, energy and facility managers, and design engineers. Specifically, the course would be most beneficial to staff responsible for implementing sustainable initiatives.

Learning Path

The NEEC Electrification and Building Operations course is mapped to the to the **specialized training category** for engineers and project managers along with facility managers and building operators within EMI's suggested learning paths. The time commitment to course (TCC) is LOW as it is a course that only runs for one day.

NEEC Electrification and Building Operations

Semester	Fall 2023
Duration	One day (totaling seven hours)
Day	Please refer to the course schedule
Location	Virtual via Zoom
Time Commitment to Course (TCC)	Low
Renewal Points/Hours	7
Minimum Technology Requirements	Webcam (Required) Microphone & Speakers/Headphones OR Headset (Required) Online Broadband (non-secured) bandwidth of 3 Mbps. A wired connection is highly recommended. Complete System Requirements for GoToMeeting Instructors and staff will actively monitor your attendance and reserve to right to decline issuance of a certificate of completion should virtual attendees not actively participate based on the rules above.

To enroll, potential students should apply through EMI's online registration portal

BOC Webinars

various topics on energy-efficient building operations

self-paced, on demand

COURSE	BRIEF DESCRIPTION
Occupant Engagement – Getting Buy-in from Building Occupants to Save Energy	Hear from a Resource Conversation Manager for a school district on her strategies to getting buy in from stakeholders to implement sustainability practices. In addition, you'll hear from the Smart Buildings Center on their successful tenant engagement strategies to increase energy efficiency in Pacific Tower, one of Seattle's landmark building.
Advanced Lighting Technologies	This webinar will highlight advanced lighting technologies and the energy savings and occupant productivity benefits they can provide by covering best practices, common pitfalls, and the latest market offerings and trends.
Achieving Water, Energy and Cost Savings through Conservation	This webinar will focus on building water system management and conservation practices that can save energy and increase efficiency.
Design Off: Dedicated Outdoor Air Systems with Heat Recovery as the Fundamental Building Block	This webinar lays out the argument for a shift away from large central all-in-one HVAC systems such as VAV to smaller decentralized zonal heating and cooling equipment with ventilation provided by a separate heat recovery ventilation unit.
Innovation in Building Envelopes and Building Technologies	This webinar will introduce building envelope improvements and window technologies such as smart glass, smart shading, and secondary windows that can help optimize occupant comfort and building efficiency.
Improving the Energy Consumption of Pumps	Focused on pump system optimization, this webinar will give attendees a primer on how pumps operate, pump applications in buildings, how pumps consume energy, and how they can be controlled to optimize energy consumption. Other topics include new DOE pump regulations, market changes, and circulator pump incentive programs.
It's Electric: The Impact of Electrification on Building Operations	This webinar will cover the transition of building energy "resources" away from fossil fuels and how building operators can prepare for the future and the opportunities it holds.
Plug Load Efficiency for Commercial Buildings	This webinar will focus on plug loads, one of the fastest growing sources of energy consumption in commercial buildings, and highlight how data collection and implementation of a management plan can help save energy and reduce operating costs.

BOC Webinars

Semester	Fall 2023 to Spring 2024
Duration	One hour
Day	Self-paced
Location	Self-paced
Time Commitment to Course (TCC)	Low
Renewal Points/Hours	1.5
Minimum Technology Requirements	Headphones OR Headset (Required) Online Broadband (non-secured) bandwidth of 3 Mbps. A wired connection is highly recommended. Instructors and staff will actively check your progress throughout the course and reserve to right to decline issuance of a certificate of completion should virtual attendees not actively participate based on the rules above.

To enroll, potential students should apply through EMI's online registration portal

DEM-offered Energy Training

The following training will be offered in-house by the DCAS Division of Energy Management (DEM), with support from CUNY SPS and CUNY BPL, during Learning Fairs and throughout the fiscal year. These courses are offered on-demand and targeted towards Agency Energy Personnel (AEP) and similar support staff.
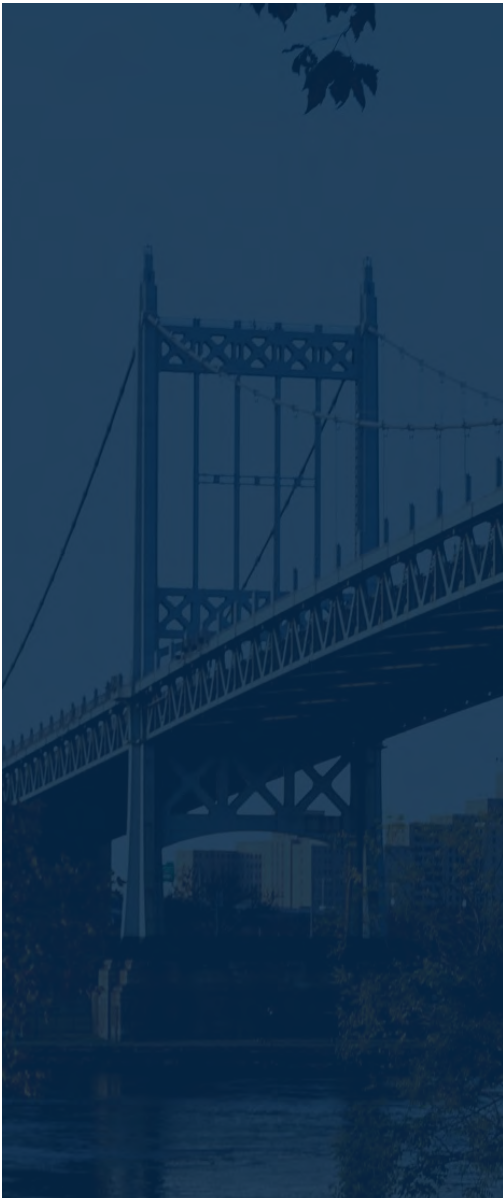
For more information regarding the schedule and enrollment for these courses, please reach out to DEM's Program Manager for Training at gguivelondo@dcas.nyc.gov.

COURSE	BRIEF DESCRIPTION
Introduction to Capital Project Registration and Contracting	This session prepares project and energy management staff to successfully navigate the City's capital contracting process to support the implementation and delivery of these energy projects. Participants will be able to understand the capital project fundamentals and policies, track the capital project lifecycle, and identify and apply best practices.
Navigating the Certificate to Proceed and Project Registration Process	This training dives into the two key components of the capital project registration and contracting process: (1) preparation of the certificate to proceed application and (2) project registration. This training enables participants to understand the role of the certificate to proceed and project registration in the overall capital project development process. In addition, participants will learn how to prepare certificate to proceed and registration applications using the standardized templates recently prepared by DEM.
Introduction to EC3	The Introduction to Energy Cost Control and Conservation (EC3) training introduces participants to EC3, a central portal run by DEM to house monthly utility billing data and provide monthly energy usage and cost information for agencies' accounts and facilities. Geared towards facility and agency energy personnel, this training enables students to navigate the EC3 platform, download and manipulate municipal energy reports, and create load profile baselines for their buildings and agencies.
Overview of Real-Time Metering	The Introduction to EnerTrac training introduces participants to EnerTrac, a central portal run by DEM (in collaboration with NuEnergen) that collects, aggregates, and stores energy interval data from real-time meters installed at City buildings. Geared towards facility and agency energy personnal this session provides a brief background on real-time metering (RTM) deployment efforts and progress, a review of RTM components, and a visualization of energy use data. Most importantly, participants will also learn how to take advantage of RTM technology and support their agencies' participation in the Demand Response and Building Re-Tuning efforts.

Other Information to Help You Get Started

Learning Paths / Course Selection

Through EMI, DEM offers a diverse set of courses that enable each participant to design their own learning path. Participants can then maintain their certification or chart their own path by continuing their education through the Learning Fair or other external workshops. Current courses are grouped into **six training categories**: foundational, building operations, AEE certification, load management, specialized, and trades-focused.

Staff can also select the courses that are right for them based on the following factors:

- **Certification(s) offered:** Some courses offer nationally-recognized certifications, such as BOC-1, BOC-2, CEM, CEA, CBCP and CMVP.
- **Level of in-going expertise:** Some EMI courses require students to have completed specific pre-requisites to ensure that they are prepared to be successful.
- **Breadth of topics covered:** Some EMI courses offer a broad overview of the energy management field, while others focus on specific topics.
- **Time commitment:** Some EMI courses are multi-day, while others are a single day or less. Each EMI course has different requirements for time spent in class for instructor-led learning *and* outside of class to conduct research, develop projects, complete online learning modules or reading assignments, and prepare for exams. The **Time Commitment to Course (TCC),** which considers time spent in class and outside of class (for projects and self-study), as well as the duration of the course itself, can be classified as **Low**, **Medium** or **High: Low** consists of up to seven hours a week, or, courses that only run for one day, **Medium** consists of up to 10 hours a week, or, courses that only run for one week, **High** consists of up to 15 hours a week over multiple weeks, or, courses that include a certification exam that requires further subject matter study.

The current EMI courses are mapped into six categories below:

	Foundational Training	Building Operations Training	AEE Certification	Trades-Focused Training	Specialized Training	Load Management Training
Courses	**Fundamentals of Building Systems** **Air to Air Energy Recovery Applications: Fundamentals**	**Building Operator Certification: Level 1 (BOC-1)** **Building Operator Certification: Level 2 (BOC-2)** **High-Performance Building Design: Applications and Future Trends** **Improving Existing Building Operation** **Operations & Maintenance of High-Performance Buildings** **Commissioning Process in New/ Existing Buildings**	**Certified Energy Manager (CEM)** **Certified Energy Auditor (CEA)** **Certified Measurement & Verification Professional (CMVP)** **Certified Building Commissioning Professional (CBCP)**	**Foundations of Energy-Efficient Operations** **Energy-Efficient Controls Systems** **Passive House Tradesperson (CPH/T) Training** **Air to Air Energy Recovery Applications: Best Practices** **Guideline 36: Best in Class HVAC Control Sequence** **V in HVAC**	**Introduction to Measurement and Verification** **Renewable Energy 101** **Energy Modeling Best Practices and Applications** **Introduction to BACnet®** **BOMI High Performance Sustainable Buildings** **Retrofit Now! Reducing Carbon and Complying with LL97** **Introduction to Building Decarbonization** **ASH90.1-2022: Starting the Path to Net Zero Buildings** **NEEC Electrification and Building Operations**	**Introduction to Load Management** **Building Re-Tuning Training and Coaching**
Target Audience	City energy management staff who are not building operators	Building operators or City energy management staff with a solid working knowledge of building systems and equipment	All interested City energy management staff and building operators who meet necessary experience and educational pre-requisites	Tradespeople focused on energy-efficiency, building operations and maintenance	All interested City energy management staff and building operators	All interested City energy management staff and building operators
TCC	Low	Medium to High	High	Low to Medium	Low to Medium	Low

Some suggested learning paths include the following:

Energy Staff Path
For energy staff with limited building operations experience

○ **Foundational Training**
Fundamentals of Building Systems

○ **Building Operations Training**
Building Operator Certification Level 1 *and*
Building Operator Certification Level 2

○ **AEE Certification**
Certified Energy Manager *or*
Certified Energy Auditor *or*
Certified Measurement & Verification Professional *or*
Certified Building Commissioning Professional

○ **Maintenance of Certification through continuing education**
for example
ASHRAE courses *through EMI or*
DEM-offered Energy Training *through the Learning Fair*

Building Operator Path
For building operators and facility managers

○ **Building Operations Training**
Building Operator Certification Level 1 *and*
Building Operator Certification Level 2

○ **Other Training Categories (LM, Specialized, Trades)**
Building Re-Tuning Training and Coaching

○ **AEE Certification**
Certified Energy Manager

○ **Maintenance of Certification through continuing education**
for example
Renewable Energy 101 *through EMI* or
Boiler Optimization *through the Learning Fair*

Tradesperson Path
For tradespeople and interested building operators

○ **Trades-Focused Training**
Energy-Efficient Controls Systems
Foundations of Energy-Efficient Operations
ASHRAE courses
Passive House Tradesperson (CPH/T) Training
OR

○ **Building Operations Training**
Building Operator Certification Level 1 (BOC-1)

○ **Maintenance of Certification through continuing education**
for example
Renewable Energy 101 *through EMI* or
Boiler Optimization *through the Learning Fair*

NYC Energy Tools / Field Equipment Lending Library (FELL)

Through the Energy Management Institute's courses, City of New York staff are also able to learn through hands-on equipment practice with the support of the NYC Energy Tools, formerly the Field Equipment Library ("FELL"). The NYC Energy Tools is a shared library of specialized energy diagnostic and measurement equipment that is available to all City staff working on energy management projects in City buildings. NYC Energy Tools is jointly run by DEM and CUNY BPL.

What equipment does this resource have?

NYC Energy Tools is stocked with equipment for measuring, diagnosing, and optimizing a range of building systems and equipment, from boilers to air handling units to solar panels. This resource includes more than 1,200 items, including but are not limited to: Digital Light Meters, Thermo-Anemometers, Ultrasonic Meters, Portable Combustion Analyzers, Clamp Meters, HOBO Data Loggers, and Thermal Imaging Cameras. Visit the online library at www.nycenergytools.com.

Where is the NYC Energy Tools located?

NYC Energy Tools is mainly located at 31 Chambers Street, New York, NY 10007. The NYC Energy Tools also has another office in 96 Greenwich St New York, NY 10006. It is open from 9:00 am to 5:00 pm Monday-Friday.

How can City staff borrow equipment from the NYC Energy Tools?

City staff can search the library online or download the catalog to identify the equipment that they need. They can then request by filling out the NYC Energy Tools Equipment Loan form. **City staff should request equipment a week before they plan to use it. Currently, equipment pick-up and drop-off is by appointment only.** After interested staff have completed the Field Equipment Request Form, CUNY BPL's Felix Rodriguez will reach out to schedule the best possible pick-up time.

How can City staff learn how to use equipment from NYC Energy Tools?

NYC Energy Tools has a dedicated, full-time equipment specialist on staff to give advice on project design and tool selection; provide equipment training and installation assistance; and offer follow-up and evaluation. Equipment demonstrations are also provided during the Learning Fairs and within specific EMI courses such as BOC-1, BOC-2, and LMTC.

Registration Guidelines

All interested City employees can apply for courses through the online registration portal.

GUIDELINES

Supervisor / Agency Approval

Students must ensure that they have supervisor and/or agency (agency training liaison or HR department) approval before registering for a course. EMI will copy the supervisor on the student's course confirmation to ensure that the supervisor is aware of the learning objectives and time commitment. Failure **to obtain supervisor approval will result in cancellation** of the student's registration.

Prerequisites

Students must confirm that they have completed the course pre-requisites. EMI may also check students' enrollment history to determine their eligibility to attend a course.

Enrollment Confirmation

Please note that **students who have successfully submitted their registration are not automatically enrolled in a course**. All classes are free of charge for City employees, and there is a high demand for certain courses. In general, EMI approves student enrollment on first-come, first-served basis, but also considers whether students have completed necessary pre-requisites or the course subject matter is relevant to their job. **The EMI team will directly reach out to students who are confirmed** to attend the course with a calendar invite and next steps. Registration is not confirmed until you've received a calendar invite.

Waitlists

If a course is at full capacity, a student can add their name to the waitlist during the registration period. The EMI team uses the waitlist to fill open spaces right before the start of the course. The student will receive an email from the EMI team if they are moved off the waitlist and enrolled in the course.

How to Register for Courses

The main registration page is can be found at cuny.swoogo.com/emi. There are six major steps to register for courses. See below for a quick step-by-step process, and next page for in-depth instructions.

HOW TO REGISTER FOR COURSES

VISIT THE EMI COURSE CATALOG
http://bit.ly/emi-cuny_catalog

1

ADD COURSE TO CART
Click the "**Register**" button to add course to cart

2

🛒 Register

CHECKOUT
Click the "**Checkout**"button to begin registration

3

➡ Checkout

REGISTER
Fill out the applicant information form and click "**Register**"

4

Registration

CONFIRM
Review and confirm your course registration

5

Confirm

VIEW YOUR DASHBOARD
Go to Dashboard to view courses pending approval

6

PENDING COURSES

Fundamentals of
Requested Approval

How to Register for Courses

The main registration page is can be found at cuny.swoogo.com/emi. There are six major steps to register for courses.

Step 1: Visit the course catalog
- Click on the "Browse Catalog" button or go to bit.ly/emi-cuny_catalog to browse through the course offerings.
- Select the course(s) you are looking to attend.
  - Click on each course [o Info] to review the course description, dates, duration, requirements, and overall time commitment.
  - Refer to this portfolio for further descriptions and information on how to select courses right for you.

Step 2: Add course to cart
- Once you have selected courses, click "Register" [🛒 Register] to add them to your cart.
- Click the shopping cart icon [🛒] to review your selected courses.

Step 3: Checkout
- Click "Checkout" [↪ Checkout] from the shopping cart or at the top right of the screen to continue your registration.
  - If you are new to the learning portal, you need to create an account.
  - If you already have an account, click "I Already Have an Account" at the top of the registration form and log in [↪ Login] with your credentials. You will be directed to Step 5.
  - If you forgot your password, click "Recover your password" on the login screen. Your username and your email address is one and the same.

Step 4: Register / Create a new account
- Create a new account by filling out the applicant information form. Provide your name, work email, supervisor's information, your complete building address, and additional applicant information such as agency, job title, alternate email, etc.
  - Fields with an asterisk are (*) mandatory. Fields without an asterisk are optional and may be left blank.
  - By selecting "Yes" on the "I have my supervisor's approval to register." statement, you are confirming that you have obtained supervisor and/or agency approval to register for an Energy Management Institute course. By also clicking on the box, you are agreeing for us to copy your supervisor on initial correspondence regarding your acceptance into the course.
- Click "Register" [Register] to complete creating a new account.
  - Your username will be the email you used to register.
  - Your (system-generated) password will be sent to your email. You will need that password to log in the second time you access your dashboard. When you first enter your system-generated password, you will be prompted to create your own password.

Step 5: Confirm
- You will see your Cart Summary showing the courses you have selected and the $0.00 total price.
  - All EMI courses are offered free of charge for City of New York staff.
  - You can review course descriptions one final time before completing your registration.
- Click "Confirm" [Confirm] to confirm your registration.

Step 6: View your dashboard
- You will see an option to view your Dashboard. On this dashboard, your selected courses will appear under "Pending Courses." When your registration is approved, your course will appear under "Active Courses."
  - You will receive an email notification when your request for enrollment is approved by DCAS.

Step 6.5: Check back
- You can log back in at any time using the learning portal login page.
  - You can check if you have been approved by DCAS to take the course.
  - You can also log back in to register for more courses.

🔔 OTHER REGISTRATION FLAGS

Cancellation of Online Registration

If you are not able to attend a previously reserved class, please log in to the registration site to cancel your application as soon as possible, so that your vacated spot can be reallocated to a waitlisted applicant. If a City employee registers for an EMI course but drops out before course start, CUNY SPS must receive the request to cancel enrollment in writing at least seven business days before the confirmed start date. Agencies (i.e., supervisors, training liaisons) are strongly recommended to designate a qualified participant for substitution up to the commencement of the class. Failure to do so may result in City employees being unable to enroll for future courses.

Password Recovery For Returning Students

You may request to reset your password if you are a returning student and do not have access to your previous password. Here's how:

1. On the learning portal log-in page, click on "Recover Password".
2. Input your username, which is always your agency email address, and click on "Request Password".
3. A new system generated password will be sent to your email address.

Error Messages / Additional Help

If you have encountered a learning portal or system error, or, for questions and concerns regarding your online application and waitlist status, please contact EMITraining@sps.cuny.edu.

Appendix:
Course Syllabi

Fundamentals of Building Systems | Course Syllabus

This course is designed to provide foundational energy management knowledge for City staff. It provides an overview of critical building systems and equipment, including their relationship to energy consumption; explains electrical and mechanical engineering concepts pertinent to building operations; and introduces best practices for energy efficiency in City buildings. The **time commitment to course (TCC)** is **low.**

Module 0 | Course Orientation and pre-assessment

This session provides an overview of the course, NYC and DEM's climate change initiatives and responsibilities, and a high-level discussion on energy efficiency.
• One self-paced paced intro module
• Pre-assessment

Module 1 to 10 | Self-paced Study // Lab

The participant dedicates this period to self-paced study and completion of assigned online lessons.
• 10 self-paced online lessons (~2.5 hours)

Final Module | Post-assessment and evaluation

This session provides a recap of all completed training and a discussion on n overview of codes, zones, regulatory requirements, as well as energy efficiency.
• Post-assessment

Building Operator Certification Level 1 (BOC-1) | Course Syllabus

This course is the foundational energy efficiency course for building operators working in City facilities. The **time commitment to course (TCC)** is **high.**

Week 1 | Course Orientation
This session introduces the course and provides an overview of topics and projects for the semester.
• 7 hours of online instruction

Week 2 | Building Electrical Systems
This session teaches the basics of electricity and schematics for building electrical systems, as well as general electrical safety concepts.
• 7 hours of online instruction
• 2 self-paced online lessons (~1.5 hours)
• One required reading textbook (~100 pages)

Week 3 | Efficient Lighting Fundamentals
This session focuses on efficient lighting fundamentals and how participants should apply them.
• 7 hours of online instruction
• 2 self-paced online lessons (~2 hours)
• One required reading textbook (~106 pages)

Week 4 | Motors
This session outlines applied motors principles, applied on-site generation and load management.
• 7 hours of online instruction

Week 5 | HVAC: Building Heating & Cooling Loads
This session is dedicated to building loads.
• 7 hours of online instruction
• 2 self-paced online lessons (~2 hours)
• One required reading textbook (~21 pages)
• Module 1 exam
• Module 1 project due

Week 6 | HVAC Systems
This session introduces the analysis of a central plant: boiler, chillers, and HVAC Air System.
• 7 hours of online instruction
• 2 self-paced online lessons (~ 2 hours)
• One required reading textbook (~147 pages)

Week 7 | Indoor Environmental Quality (1)
The session teaches the fundamentals of applied controls, as well as ventilation and pressure.
• 7 hours of online instruction
• Three required reading textbooks (~166 pages)

Week 8 | Indoor Environmental Quality (2)
This session focuses on basic energy units and conversions as well as reading, accessing, and manipulating energy data through the EC3 portal.
• 7 hours of online instruction
• Module 2 exam
• Module 2 project due

Week 9 | Project Development 1 // No classes
A self-study week dedicated to project development and completion of online lessons assigned.
• 3 self-paced online lessons (~2.5 hours)
• One required reading textbook (~ 75 pages)

Week 10 | Interpreting Energy Data
This session focuses on applying energy data and provides an introduction to applied energy auditing.
• 7 hours of online instruction

Week 11 | Project Development 2 // No classes
A self-study week dedicated to project development and completion of online lessons assigned.
• 2 self-paced online lessons (~1.5 hours)

Week 12 | Applied Energy Audit
This session discusses an applied energy audit case and low-cost building operational measures.
• 7 hours of online instruction
• Module 3 exam
• Module 3 project due

Week 13 | Project Development 3 // No classes
A self-study week dedicated to project development and completion of online lessons assigned.
• 1 self-paced online lessons (~1 hour)

Week 14 | Maintenance for Performance
This session focuses on applying maintenance for performance and energy calculations.
• 7 hours of online instruction

Week 15 | Project Development 4 // No classes
A self-study week with online instructor support to develop the capstone project.

Week 16 | Capstone Project and Course Evals
This is the last session of the course.
• 7 hours of online instruction
• Module 4 exam
• Final capstone project and presentation due

Building Operator Certification Level 2 (BOC-2) | Course Syllabus

This course is the level 2 for the foundational energy efficiency course for building operators working in City facilities. The time commitment to course (TCC) is high.

Week 1 | Module 1: Best Practices for High Performance Operations & Maintenance
Module 1 will cover:
• Key Performance Indicators for Energy Efficiency
• Building Operating Plan
• Types of Maintenance
• Energy Benchmarking
• Energy Audits & Retro-Commissioning

This session introduces the course and provides an overview of topics and projects for the semester.
Training Day will involve:
• Classroom Training
• Practical Project Introduction

Week 2
Project work week will involve:
• Practical Project Work
Reading Assignments:
• BOC 201: Preventive Maintenance & Troubleshooting Principles
• BOC 214: Building Commissioning

Week 3
Lab session
• Kickoff with Learning Coach
• 1-1 project status meeting with coach
 • Online lessons:
• Preventive Maintenance 1
• Preventive Maintenance 2
• Commissioning
• Project work

Week 4
Training Day will involve:
• Classroom Training
• Project work and status check

Week 5
Training Day will involve:
• Classroom Training
• Project Presentation and Submittal
• Exam

Week 6 | Module 2: Sensors, Calibration & Transmitters
Module 2 will cover:
• Sensors
• Transmitters
• Multimeters
• Measurement & Calibration Concepts
• Sensor Calibration Programs
• Pneumatic Upgrades
• Practical Applications

• Point Database

Training Day will involve:
• Classroom Training
• Online lesson - Sensors
•   Practical Project Introduction

Week 7
Project work week will involve:
• Practical Project Work

Week 8
Lab session
• Instructor Kickoff session on multimeter and lab day
• Multimeter hands-on lab
• Project work
• 1-1 project status meeting with instructor

Week 9
Training Day will involve:
• Classroom Training
• Project Presentation and Submittal
• Exam

Week 10 | Module 3: HVAC Controls Optimization
Module 3 will cover:
• HVAC Controls
• Troubleshooting
• Guidelines for Controls Sequence of Operations
• Functional Testing
• Control Loop Tuning
• Ladder Diagrams
• Controls Maintenance
• Green Controls Strategies

Training Day will involve:
• Classroom Training
• Online lesson - HVAC Controls Optimization 1
•   Practical Project Introduction

Week 11
•   Project work week will involve:
• Practical Project Work
•   Reading Assignments:
•   BOC 203: HVAC Troubleshooting and Maintenance
•   BOC 204: HVAC Controls Optimization

Week 12
Training Day will involve:
• Classroom Training
• Online lesson - HVAC Controls Optimization 2
• Practical Project

Week 13
Training Day will involve:
• Classroom training
• Project presentation and Submittal
• Exam

• **Week 14 | Module 4: Energy Strategies - Controls Sequence of Operations**
Module 4 will cover:
• Controls Sequence of Operations
• Setpoints
• Modes of Operation
• Creating a Functional Check
• Scheduling
• Energy Efficient Strategies
• Trend Data

Training Day will involve:
• Classroom Training
• Online lessons: Introduction to CSOs
• Practical Project Introduction

Week 15
Project work week will involve:
• Practical Project Work

Week 16
Lab session
• Kickoff with Learning Coach
• 1-1 project status meeting with coach
• Online lessons:
• eLearn – Control Strategies that Save Money - Project work

Week 17
Training Day will involve:
• Classroom Training
• Project work and status check

Week 18
Training Day will involve:
Classroom Training
• Project Presentation and Submittal
• Exam

Week 19 | Module 5: Electrical Maintenance and Troubleshooting
Module 5 will cover:
• Electrical Distribution, Generators, and Transformers
• Types of Electrical Maintenance Plans
• Power Quality
• Electrical Testing and Maintenance
• Electrical Control Circuits and Wiring
• Electric Safety
• Practical Problems to Overcome in Implementing a Maintenance Plan

Training day will involve:
• Classroom training
• Practical Project Introduction

Week 20
Project work week will involve:
• Practical Project Work
Reading Assignments:
• BOC 202: Advanced Electrical Systems Diagnostics
• BOC 213: Mastering Electric Control Circuits

Week 21
Lab session
• Kickoff with Learning Coach
• 1-1 project status meeting with coach
• Online lessons:
• Electrical Maintenance and Troubleshooting
• Electrical System Monitoring & Maintenance
• Electrical System Diagnostic Technologies
• Project work

Week 22
Training day will involve:
• Classroom training
• Project work and status check

Week 23
Training Day will involve:
• Classroom training
• Practical project presentation and submittal
• Exam

Week 24 | Module 6: Boiler Plant & Hydronic System High Performance O&M
Module 6 will cover:
• Fundamentals
• Boiler Ratings & Efficiency
• Primary (Operational) Energy Conservation Opportunities (ECOs) and Calculations
• Applied (Capital) ECOs
• Techniques for pursuing increases in steam and hydronic (hot water) system efficiency
• Testing and Monitoring

Training Day will involve:
• Classroom Training
• Practical Project Introduction

Week 25
Lab session
• Kickoff with Learning Coach
• 1-1 project status meeting with coach
• Online lessons:
• Boilers & Efficiency
• Steam Distribution Systems
• Hot Water Systems
• Project work

Week 26
Training day will involve:
• Classroom training
• Project work and status check

Week 27

Project work week will involve:
• Practical Project work
Reading Assignments:
• BOC 201: Preventive Maintenance & Troubleshooting Principles
• BOC 213: HVAC Troubleshooting and Maintenance
• BOC 212: Water Efficiency for Building Operators

Week 28

Training day will involve:
• Classroom training
• Practical project presentation and submittal
• Exam

Renewable Energy 101 | Course Syllabus

The Renewable Energy 101 course provides City staff with an introduction to renewable energy technologies in the context of the City's clean energy goals. This introductory course will equip interested employees with the knowledge to advocate for, implement and maintain renewable energy technologies, especially on solar PV. The **time commitment to course (TCC)** is **medium.**

Day 1 | Course Orientation
This session provides participants the opportunity to learn about renewable technologies and policies, solar trends, site selection and planning, codes, inspections, finance mechanisms, and the project approval process. Participants are also introduced to NYC's road map of reaching 100MW of solar by 2025.
• 7 hours of online instruction
• 1 self-paced online lesson

Day 2 | Building Electrical Systems
This session teaches the basics of installation fundamentals, operations, and maintenance for Solar PV, including data acquisition systems and management, design, installation, reports, and troubleshooting.
• 7 hours of online instruction

Day 3 | Innovation in Solar PV
This session outlines the innovations in the solar power field and battery energy storage, reduced carbon, and increased resiliency.
• 7 hours of online instruction

Day 4 | Solar Lab pt. 1
This session focuses on practical exercises and case studies, hands-on activities, and concludes with a workshop about equipment repair and site safety.
• 7 hours of online instruction

Day 5 | Solar Lab pt. 2
This session continues the practical exercises and hands-on activities, and concludes with a rooftop solar installation walkthrough.
• 7 hours of online instruction

Building Re-tuning Training and Coaching | Course Syllabus

The Building Re-tuning Training and Coaching (LMTC) course is designed to provide building operators with hands -on support in implementing Load Management (LM) measures at your buildings to optimize HVAC system efficiencies and find opportunities for energy savings. The **time commitment to course (TCC)** is **medium.**

Week 1 | Course Orientation
This session is dedicated to explaining the Load Management (LM) terms and concepts, Using Enertrac to interpret load profiles, identifying strategies to optimize energy consumption and identifying control loops. The participant learns how to use the HoboMobile and create a load profile baseline.
• 3.5 hours of online instruction

Week 2 | Building Automation System (BAS)
this session teaches students how to identify how to set up and extract trends data from a BAS system or data logger; and how to use trend data to better understand existing control loops.
• 1.45 hours of online instruction
• 1.45 hours of a coaching session

Week 3 | Interpreting Trend Charts
This session focuses on reading and interpreting trend charts for heating, shoulder, and cooling seasons.
• 1.45 hours of online instruction
• 1.45 hours of a coaching session

Week 4 to Week 8 | Coaching Sessions
These coaching sessions provide participants the opportunity to interpret and analyze facility-specific trend charts, investigate building systems, and, with the support of the instructor and DEM's Building Re-tuning Team, identify and implement operational improvements using specific best practices. During session 8, participants learn more about DEM funded programs from representatives, and next steps are established for post-class engagement with the BRTC team.
• 3.5 hours of a coaching session

Introduction to Load Management | Course Syllabus

This course is dedicated to identifying load management terms and concepts, navigating the EnerTrac software platform, and interpreting load profiles and consumption patterns to identify savings opportunities. The **time commitment to course (TCC)** is **low.**
• 7 hours of online instruction

Certified Energy Manager (CEM) | Course Syllabus

This course enables students to obtain the Certified Energy Manager (CEM) credential by preparing and registering them for the CEM certification exam, offered by the Association of Energy Engineers (AEE). The **time commitment to course (TCC)** is **high.**

Day 1 | Instruments
This session focuses on significant aspects of energy management and audit. The instructor reviews codes and standards and presents how to enhance a green building to high performance.
•7 hours of online instruction

Day 2 | Accounting
This session presents energy accounting and economics, maintenance and commissioning, and M&V. The instructor also outlines practical aspects of the field, such as electrical power systems, motors, and drives, lighting systems.
•7 hours of online instruction

Day 3 | Automation and Control
This session reviews characteristics of HVAC Systems, building envelope, automation, and control systems. The instructor offers an overview of thermal energy storage systems.
•7 hours of online instruction

Day 4 | Energy Savings Performance
This session outlines industrial systems and energy savings performance contracting, measurement, and verification. The instructor reviews particular aspects of boilers, steam, and CHP systems.
•7 hours of online instruction

Day 5 | Certification Exam
This session concludes the training and holds the proctored certification exam.
•certification exam // scheduling of exam (for the virtual training version)

About CUNY School of Professional Studies

The CUNY School of Professional Studies (CUNY SPS) provides online and on campus programs that meet the needs of adults who are looking to finish a bachelor's degree, earn a master's degree or certificate in a specialized field, advance in the workplace, or change careers.

Drawing on CUNY's nationally and internationally renowned faculty and practitioners, as well as industry and education partners, our programs provide opportunities for personal growth, job mobility, greater civic participation, and new ways to advance knowledge.

Contact: EMItraining@sps.cuny.edu

Location: CUNY School of Professional Studies, 119 West 31st Street, New York, NY, 10001

www.sps.cuny.edu

About CUNY Building Performance Lab

Founded in 2006, the mission of the CUNY Institute for Urban Systems Building Performance Lab is to advance high-performance building operations and practices in existing commercial and public buildings. We focus on improving efficiency and optimizing building operations through continuing education programs for facility managers, building operators, and energy professionals, internships for CUNY students, and building systems research and development.

www.cunybpl.org

About DCAS Division of Energy Management

The New York City Department of Citywide Administrative Services' (DCAS) Division of Energy Management (DEM) serves as the hub for energy management for City government operations. As part of that role, DEM is charged with leading the City's efforts to reduce greenhouse gas (GHG) emissions, with the goal of an 80% reduction by 2050, across the City's built environment. DEM also manages a $700 million annual energy supply budget and a $2.7 billion 10-year capital budget to implement energy efficiency projects. Working closely with city agencies, DEM has focused on transforming energy management across the public portfolio of more than 4,000 public buildings by undertaking efforts in four areas: data analysis, behavioral change, energy-efficient operations and maintenance, and energy project implementation.

Today, DEM provides agency partners with nine major types of support to help them transform energy usage in their buildings: (1) Data Analysis (2) Technical Guidance, (3) Strategic Planning, (4) Dedicated Energy Management Staff, (5) Training and Behavioral Change Support, (6) Contracting Resources, (7) Enhanced Operations and Maintenance, (8) Funding for Energy Efficiency Projects, and (9) Funding for Clean Energy Generation Projects.

Contact: energy@dcas.nyc.gov or gguivelondo@dcas.nyc.gov

Location: Department of Citywide Administrative Services, Floor 17, Manhattan Municipal Building, 1 Centre Street, New York, NY 10007.

www.nyc.gov/energy-conservation

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