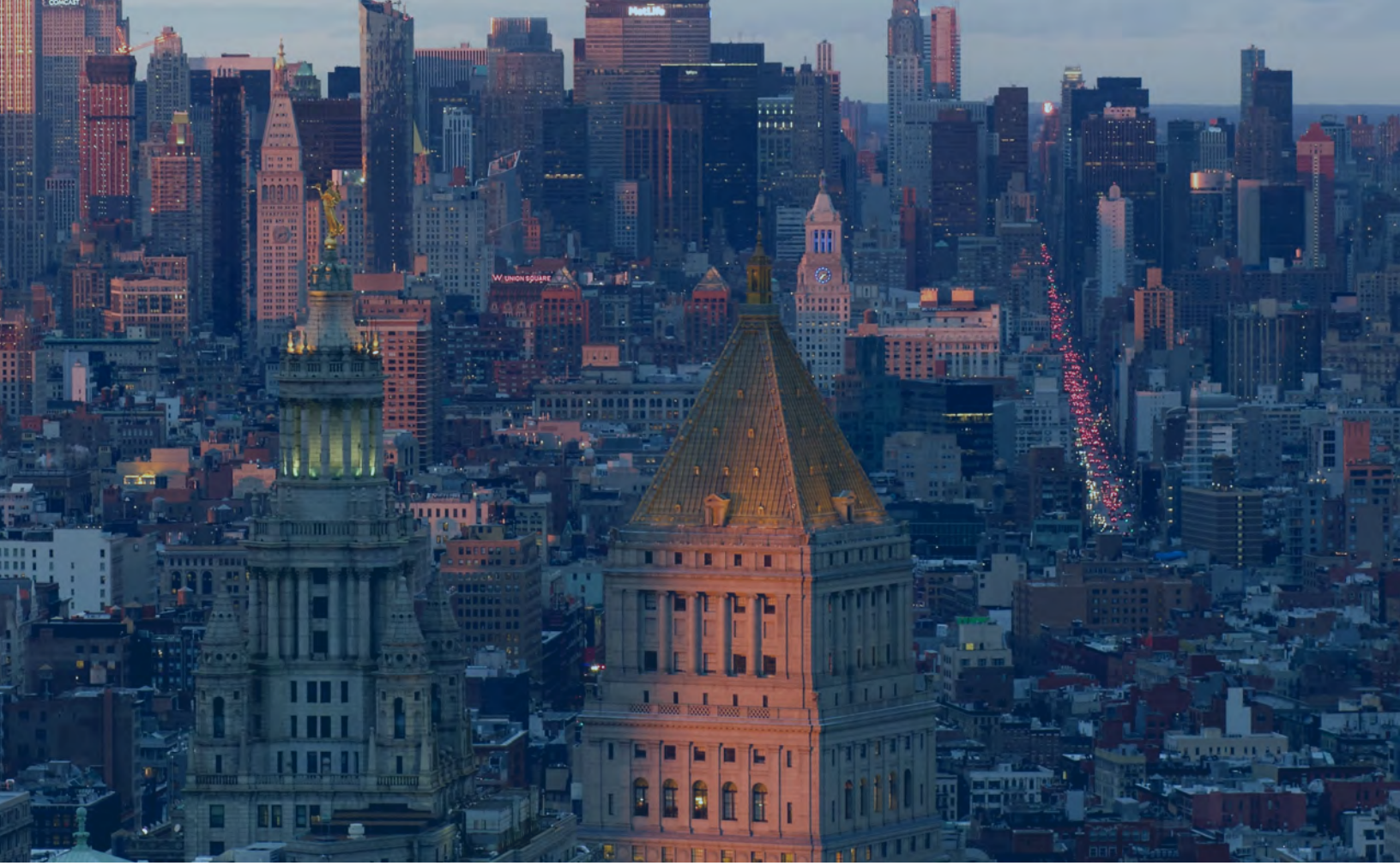

Energy Management Institute

Course Catalog
Fall 2020

Energy

NYC DCAS
Citywide Administrative Services

CUNY School of Professional Studies

CUNY

BPL
BUILDING performance LAB

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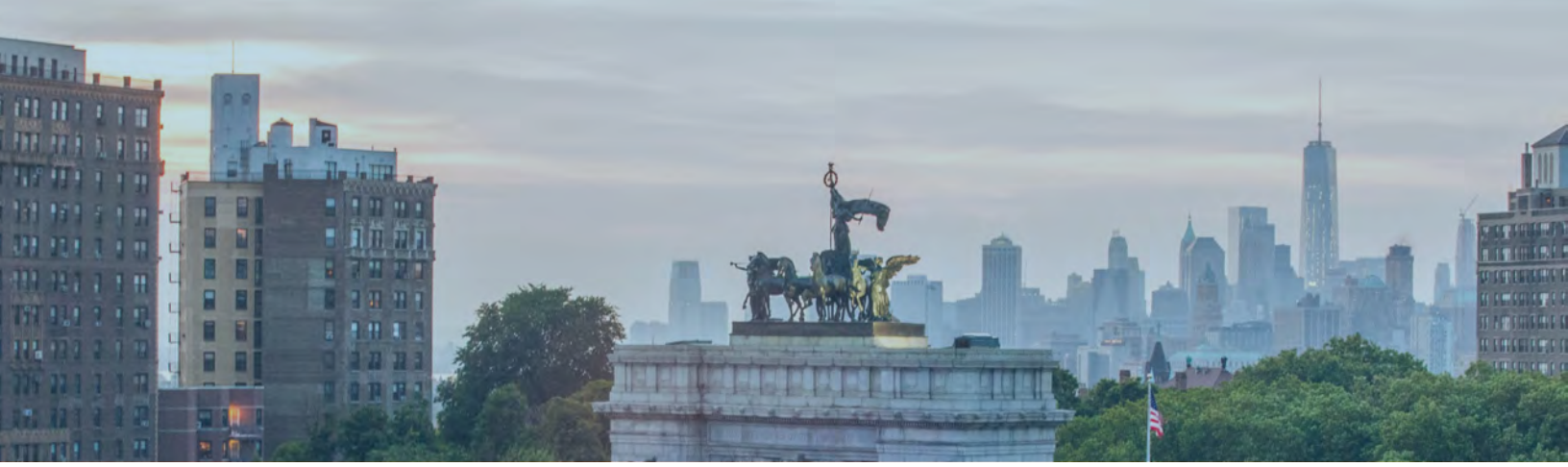


A Message From Our Team

Welcome to another semester of the Energy Management Institute (EMI)!

The past few months have been a challenging experience for us all. Our EMI team has been inspired by the drive and commitment of City staff to persist in their learning and professional development journeys.

Last spring, our staff, subject matter experts, and instructors took on the challenging task of quickly translating most of our EMI courses into an online format, while our students stayed patient and motivated during the transition. This semester we remain committed to maintaining the learning momentum in a dynamic environment. To ensure that the City of New York's workforce has continuous access to energy management training and certification opportunities, **EMI's fall courses will continue to be delivered using a virtual classroom format**.

While the concept of online learning is not new to EMI, this is a first for us to deliver an entire scope of courses virtually. To sustain a learner-centric experience, we have:

- revisited our course design to include more opportunities for learner involvement,
- prepared our team to expertly launch and manage the online learning platform, and
- taken action to ensure that learners have the resources, both in terms of technology capability and additional instructor support, to succeed in their learning.

We will continue to follow the City of New York, City University of New York, and the New York State's guidance on reopening for in-person classes and refine our approach accordingly. Until we can reunite in the classroom, we look forward to seeing you in virtual training!

For more information about CUNY's response to the coronavirus disease, go to www.cuny.edu/coronavirus. For NYC updates and other helpful information, visit www.nyc.gov/coronavirus.

Best,
The EMI Team

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

Energy Management Institute Overview

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 (SPS), CUNY Building Performance Lab (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 and offered 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.

How do I know which EMI course is right for me?

Please see Learning Paths on page 7.

What is a typical EMI course like?

EMI courses range in length from multi-day courses to half-day workshops. Most of the multi-day courses involve a blended learning approach that combines synchronous instructional sessions with self-paced online modules. Depending on the course, there may be up to 20 students per class.

What's a typical virtual EMI session like?

Even with the transition to online learning this semester, EMI's virtual classroom setting is still similar to a traditional classroom environment.

- Most sessions are "synchronous," meaning everyone participates live at the same time using virtual training technology.
- Most sessions will still take the same amount of time as an in-person training, in order to comply with third-party certification requirements.
- Most sessions will still have the same expectations on project deadlines, exams, and class participation.

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 or complete the EMI Registration Form and email it to EMItraining@sps.cuny.edu by the course's designated registration 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 27.
- **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.

When and where 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.

This semester, **EMI courses will be held virtually using the Webex platform**. The EMI team will provide participants with walkthrough opportunities and resources in order to understand and fully engage with the virtual platform prior to the official start of the course.

How can I register online?

EMI accepts online applications for courses via the online registration portal. Click the "Register Now" button on the homepage of the portal to begin the registration process. Guidelines on how to register are outlined in more detail on page 10 and 11.

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

Registration Guidelines

See page 10 and 11 for the complete EMI registration guidelines.

Course Enrollment Cancellation Policy

If a City employee registers for an EMI course but drops out before satisfactory course completion, a "No Show" fee will be assessed to their agency's training department in accordance with the CTC's cancellation policy. The specific cancellation fee for each course is listed under the course description. CUNY SPS must receive requests to cancel enrollment without a fee in writing at least seven business days before the confirmed start date for the course. Agencies may designate a qualified participant for substitution up to the commencement of the class without penalty.

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 and their agency being assessed a "No Show" fee.** In the event of an emergency, illness, or other unforeseen circumstances which would prevent you from attending a session or taking a scheduled exam, course participants are expected to contact their course instructor and the program manager assigned to your course about your absence and make any necessary arrangements for any missed assignments/exams prior to the next class.

Accessing EMI Online Materials

Students can access online instructional materials through a dedicated portal, the Hughes Learning Management System (LMS), at http://boc1.rapidtraining.com. Students will receive specific information about the process for logging into the LMS once they are enrolled in a course.

Course Academic Integrity Policy

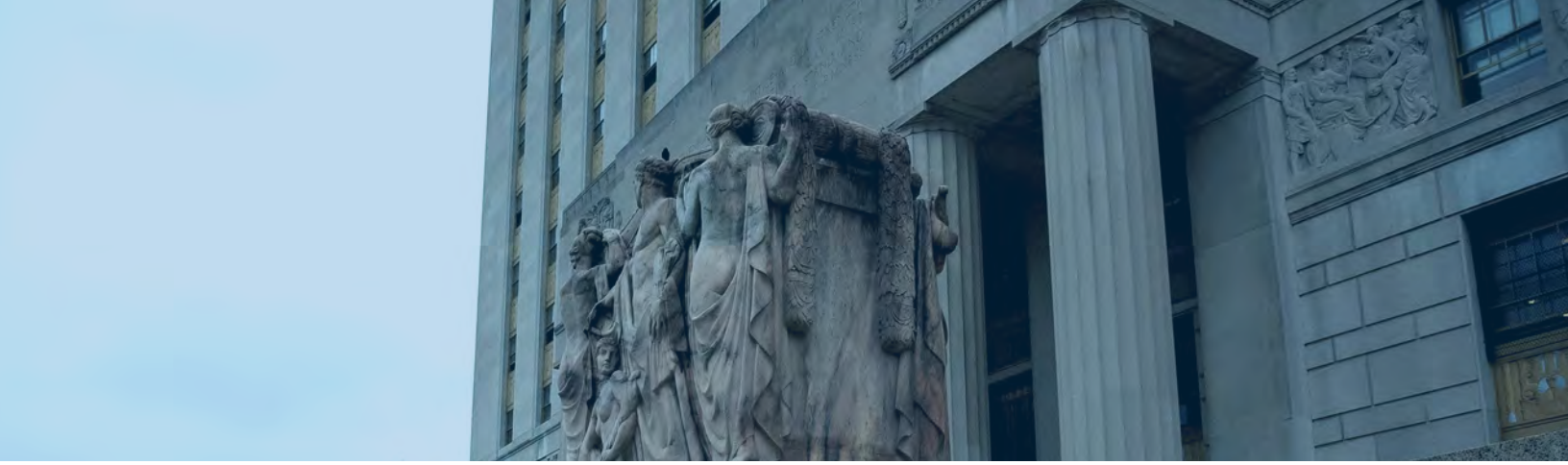
CUNY SPS and DEM are committed to upholding CUNY's Academic Integrity Policy. To this end, students are expected to submit assignments that reflect their own individual efforts and to seek support directly from the course instructor when they encounter challenges with the course requirements. Students 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.

What are the Learning Fairs?

During the Learning Fairs, DEM and CUNY SPS offer half-day courses over a concentrated two- to three-day period. 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. This semester, EMI will launch a Learning Fair sometime in November.

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 always are looking for subject matter experts (SMEs) to contribute to course development. If you are interested in supporting EMI as a SME, please contact the 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 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. Currently, DEM is working to refine 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 Program Manager.

Who can I contact if I have further questions?

DEM EMI Team
Gretel Guivelondo, Program Manager, Training
Email: gguivelondo@dcas.nyc.gov

CUNY SPS EMI Team
Email: EMItraining@sps.cuny.edu
Stephanie Alzate, Program Coordinator
Michelle Attles, Program Director
Daniella Olibrice, Manager Program Effectiveness
Muamer Rasic, Program Data Analyst
Erica Toto, Program Manager

Learning Paths

Through EMI, DEM offers a diverse set of courses that enable each participant to design their own learning path. Current courses are grouped into **six training categories**: foundational, building operations, AEE certification, load management, specialized, and trades-focused. Participants can then maintain their certification or chart their own path by continuing their education through the Learning Fair or other external workshops. (For a map identifying which courses fall within a particular category, please see page 9.)

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

- **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. Half-day sessions tend to be offered in the setting of the Learning Fair.
- **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.
- **Certification(s) offered:** Some courses offer nationally-recognized certifications, such as BOC-1, BOC-2, CEM, and CEA.

A common learning path is illustrated below:

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

Maintenance of Certification through continuing education
for example
Measurement and Verification *through EMI or*
Blueprint Reading *through the Learning Fair*

Other suggested learning paths include the following:

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)**
  Load Management 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**
  Foundations of Energy-Efficient Operations
  OR
- **Building Operations Training**
  Building Operator Certification Level 1 (BOC-1)
- **Trades-Focused Training**
  Energy-Efficient Controls Systems
- **Maintenance of Certification through continuing education**
  for example
  Renewable Energy 101 *through EMI* or
  Boiler Optimization *through the Learning Fair*

The current EMI courses are mapped into six categories below:

Category	Foundational Training	Building Operations Training	AEE Certification	Load Management Training	Specialized Training	Trades-Focused Training
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	All interested City energy management staff and building operators	All interested City energy management staff and building operators	Tradespeople focused on energy-efficiency, building operations and maintenance
Courses	Fundamentals of Building Systems	Building Operator Certification: Level 1 (BOC-1) Building Operator Certification: Level 2 (BOC-2)	Certified Energy Manager (CEM)	Introduction to Load Management Load Management Training and Coaching	Measurement and Verification Coaching Renewable Energy 101	Foundations of Energy-Efficient Operations Energy-Efficient Controls Systems
Fall 2020 Courses Offered	Fundamentals of Building Systems	Building Operator Certification: Level 1 (BOC-1) Building Operator Certification: Level 2 (BOC-2)		Introduction to Load Management Load Management Training and Coaching	Measurement and Verification Coaching	
Spring 2021 Courses Offered	Fundamentals of Building Systems	Building Operator Certification: Level 1 (BOC-1)	Certified Energy Manager (CEM) Certified Energy Auditor (CEA)	Introduction to Load Management Load Management Training and Coaching	Measurement and Verification Coaching Renewable Energy 101	Foundations of Energy-Efficient Operations Energy-Efficient Controls Systems

Registration Guidelines

We encourage interested City employees to apply for courses through the online registration portal. A scanned paper copy of the registration form may also be submitted via email (see page 28 for further instructions).

Registration Guidelines

Supervisor Approval

Students must ensure that they have supervisor 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

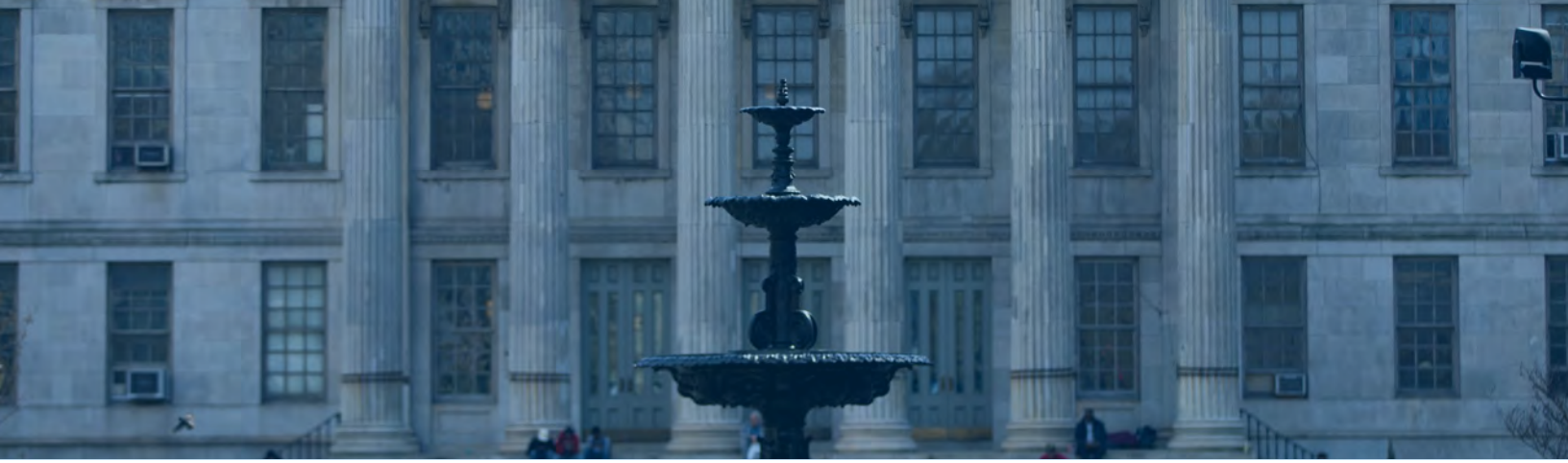
Students must confirm that they have completed the course pre-requisites. EMI may also check students' enrollment history to determine their eligibility to attend a course.

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.

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.



Online Registration Process

The online registration short link is bit.ly/EMIFall2020. Click on the "Register Now" button on the portal to begin the registration process. There are five sections in the registration form:

Begin Registration

1. Begin applying for your courses by providing your name, email, and your supervisor's information.
2. By clicking on the "Supervisor Approval" box, you are confirming that you have obtained supervisor approval to register and enroll for an Energy Management Institute course. By also clicking on the box, you are agreeing for EMI to copy your supervisor on initial correspondence regarding your acceptance into the course.
3. If you have registered before in CUNY's *Swoogo* system, you may be prompted to sign in after you have submitted your information (after clicking on the "Continue" button).
   - You may continue to log in if you remember your password. You may also request to reset your password.
   - You may also skip this step by clicking on the "Skip This Step..." link.

Personal Information

1. Continue providing your additional personal information such as agency, job title, etc.
2. Fields with an asterisk are (*) mandatory. Fields without an asterisk are optional and may be left blank.
3. Click "Continue" when you are done.

Courses

1. Select the course(s) you are registering for.
   - Click on the "More Info" icon to learn more about the class, location, and overall time commitment.
   - Refer to the Fall 2020 Course Catalog for more in-depth information.
2. Click "Continue" when you are done.

Training/Certification Information

1. Continue providing additional information based on previously attended EMI courses and current certifications.
2. Click "Continue" when you are done.

Confirmation

1. Click on the magnifying glass icon to review your registrant details and course selections.
2. You will be able to modify your registration while the registration period is still open.
3. You will receive an email notification (1) when you have successfully registered and (2) when your request for enrollment for the course is approved.

Cancellation of Online Registration

If a student is not able to attend the class, they should **log in to cancel their application** as soon as possible, so that their spot can be allocated to a waitlisted applicant.

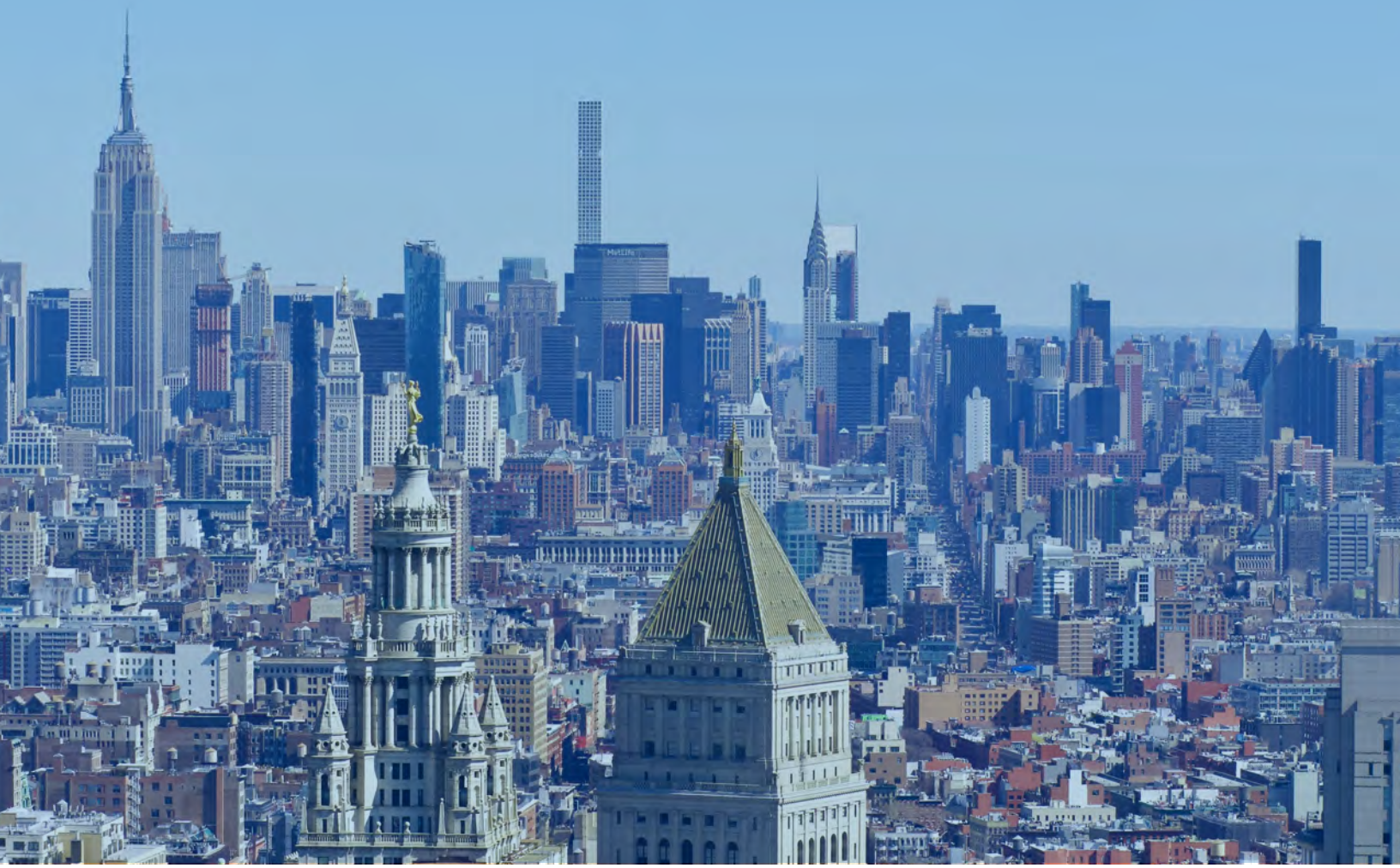
Additional Help

Contact EMITraining@sps.cuny.edu for questions and concerns regarding your online application or waitlist status.

Fall Semester Course Schedule

The below courses are slated to start during fall 2020, but may conclude next year. The spring 2021 schedule and catalog will be released in December; for a complete list of courses offered for this fiscal year, refer to the table on page 9.

Fall Courses	Virtual Start Date	Registration Deadline
Building Operator Certification, Level 1	September 24	September 21
Building Operator Certification, Level 2	November 20	September 30
Fundamentals of Building Systems	October 6	September 30
Introduction to Load Management	October 27	September 30
Load Management Training and Coaching	September 9	September 4 (Cohort B)
	November 5	September 30 (Cohort C)



Fall Semester
Course Descriptions

Building Operator Certification Level 1 (BOC-1)

building systems, efficient operations, energy data

four months

third-party certification

Course Structure

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

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 synchronous sessions taught by subject matter experts over a four-month (18 weeks) period, complemented by 14 self-paced online modules. To successfully complete the course, students must attend all live online 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 work together to assist City staff in completing their paperwork for the credential and taking the certification exam.

Target Audience and Learning Path

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 work experience with building systems.
- Energy management staff who already have received some energy efficiency training and are seeking to deepen their understanding of building system and equipment concepts. In general, energy management staff should take the Fundamentals of Building Systems course before enrolling in BOC-1.
- In most cases, Fundamentals of Building Systems is a pre-requisite for non-building operators who seek to complete BOC-1.

BOC-1 is mapped as a **building operations** category relative to EMI's suggested learning paths.

BOC-1 Cohort

Duration	12 sessions over a span of four months
Day	Thursdays
Time	9 AM to 4 PM
Location	Virtual via Webex
Training Dates	9/24, 10/1, 10/8, 10/15, 10/22, 10/29, 11/5, 11/19, 12/3, 12/17, 1/7 and 1/21
Registration Deadline	September 21
Minimum Technology Requirements	Internet access Laptop or computer with minimum browser and OS requirements for Webex One of the following: an internal/built-in computer microphone, a headset with a microphone, or a mobile phone Webcam (optional)

*****To enroll, potential students should apply through the online registration portal at cuny.swoogo.com/emifall2020/begin*****

Cancellation Fee

If a City employee registers for BOC-1 but drops out before satisfactory course completion, a “No Show” fee of $1,875 will be assessed to their agency’s training department in accordance with the CTC’s cancellation policy.

Building Operator Certification Level 2 (BOC-2)

high-performance operations, system calibration, troubleshooting

seven months

third-party certification

Course Structure

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

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 sessions taught by subject matter experts over a seven-month (30 weeks) 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.

Target Audience and Learning Path

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.

BOC-2 is mapped as a **building operations** category relative to EMI's suggested learning paths.

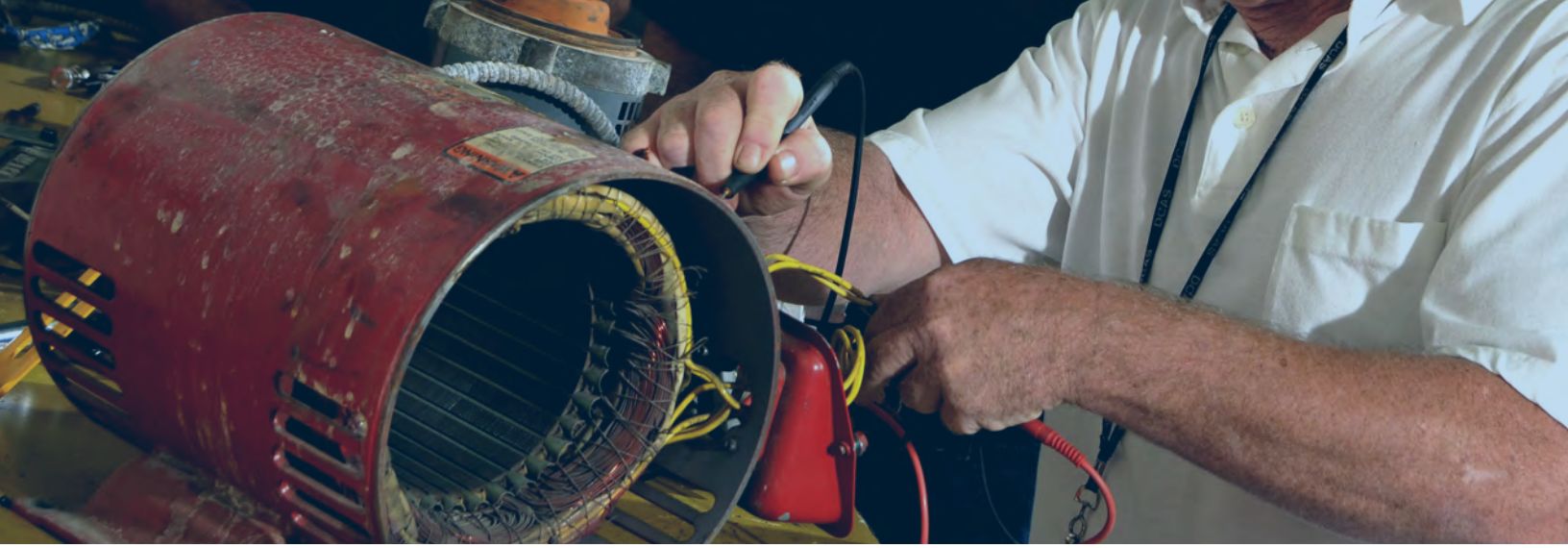
BOC-2 Cohort

Duration	22 sessions over a span of seven months
Day	Fridays
Time	9 AM to 4 PM
Location	Virtual via Webex
Training Dates	11/20, 12/4, 12/11, 12/18, 1/8, 1/22, 1/29, 2/5, 2/19, 2/26, 3/5, 3/19, 3/26, 4/2, 4/9, 4/16, 4/23, 5/7, 5/14, 5/28, 6/4 and 6/11
Registration Deadline	September 30
Minimum Technology Requirements	Internet access Laptop or computer with minimum browser and OS requirements for Webex One of the following: an internal/built-in computer microphone, a headset with a microphone, or a mobile phone Webcam (optional)

*****To enroll, potential students should apply through the online registration portal at cuny.swoogo.com/emifall2020/begin*****

Cancellation Fee

If a City employee registers for BOC-2 but drops out before satisfactory course completion, a “No Show” fee of $1,875 will be assessed to their agency’s training department in accordance with the CTC’s cancellation policy.



Fundamentals of Building Systems

NYC energy and climate goals, principles of building systems

two weeks

Course Structure

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

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 BOC-1.

Fundamentals consists of a half-day introductory session, followed by ten self-paced online modules, and then a half-day wrap-up session. The wrap-up session helps close out the online modules to ensure understanding. The online modules cover: (1) the building envelope; (2) the science of building systems; (3) HVAC, plumbing, and electrical building systems; (4) building controls; (5) occupant controls; (6) maintenance; (7) risks; (8) codes, zones, and regulatory requirements; (9) environmental factors; and (10) a wrap-up module. To successfully complete the course, students must attend the online sessions; finish all self-paced modules; and take pre- and post- learning assessments given during the first and final classes.

Target Audience and Learning Path

Fundamentals is designed for City energy management staff who are not building operators and do not have a technical background. Students enrolled in this course should not have primary job responsibility for managing building operations at their facility and/or extensive working knowledge of building systems and equipment. In most cases, Fundamentals is a pre-requisite for non-building operators who seek to complete BOC-1.

Fundamentals is mapped as a **foundational** category relative to EMI's suggested learning paths.

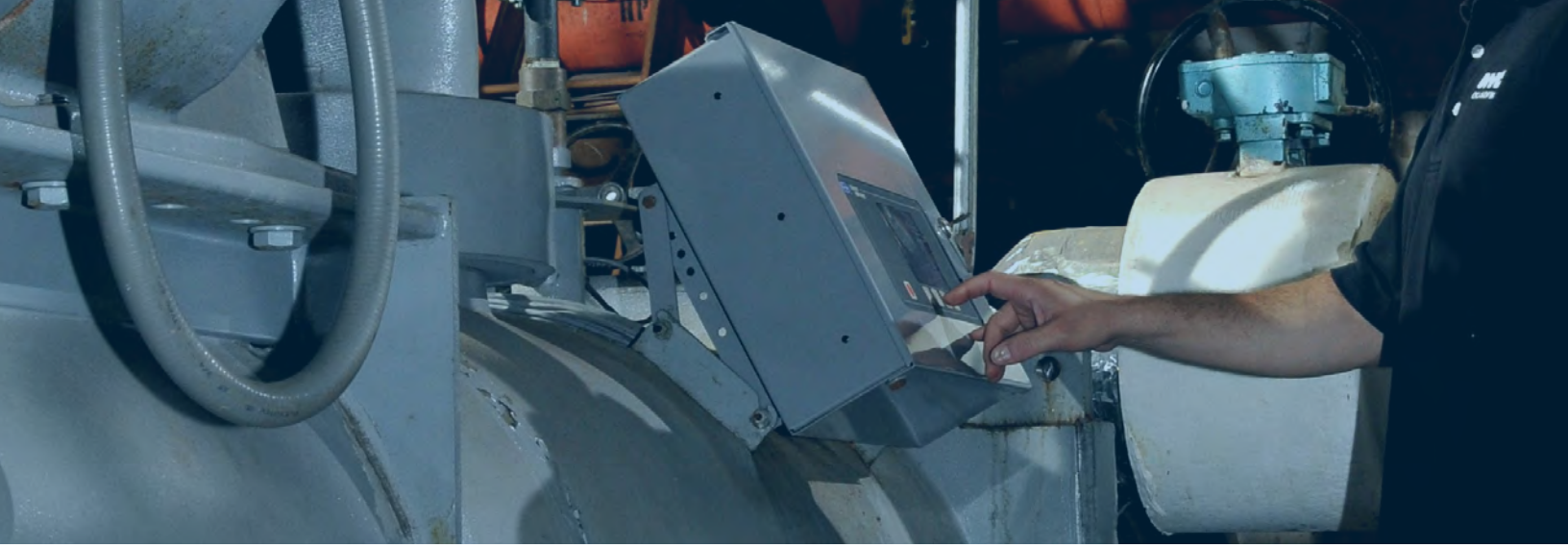
Fundamentals Cohort

Duration	Two sessions over a span of two weeks
Day	Tuesdays
Time	9 AM to 1 PM
Location	Virtual via Webex
Training Dates	10/6 and 10/20
Registration Deadline	September 30
Minimum Technology Requirements	Internet access Laptop or computer with minimum browser and OS requirements for Webex One of the following: a internal/built-in computer microphone, a headset with a microphone, or a mobile phone Webcam (optional)

*****To enroll, potential students should apply through the online registration portal at cuny.swoogo.com/emifall2020/begin*****

Cancellation Fee

If a City employee registers for Fundamentals but drops out before satisfactory course completion, a "No Show" fee of $975 may be assessed to their agency's training department in accordance with the CTC's cancellation policy.



Introduction to Load Management

real-time metering, load profile analysis

one day

Course Structure

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

This course provides City staff with an overview of Load Management concepts and techniques aimed at finding ways in which to optimize your building's operation by reducing energy consumption. Led by an expert in energy engineering, the course is designed to equip staff with the essential information that they need to help their agencies participate in the City's Load Management Program and realize the benefits involved in doing so, including optimizing HVAC system efficiencies and contributing to the City's target of 80% reduction in greenhouse gas emissions by 2050.

During the course, students will discover the policy context for load management, go through relevant load management concepts, discuss key examples, and learn to interpret load profiles, all in an effort to draw connections between your buildings' consumption patterns, and operations to identify savings opportunities. The course consists of a 6-hour interactive online workshop held on a single day. The first part of the workshop involves lecture and discussion, while the second part is comprised of hands-on EnerTrac training, the City's platform for analyzing real-time metering data, with a focus on load profile analysis in an online lab environment. To successfully complete the course, students must only attend the course.

Target Audience and Learning Path

The Introduction to Load Management session is open to all interested energy management staff, building operators, and facilities management staff at City buildings. The course does not require a technical background. Please note that DEM may give preference to staff at agencies targeted for near-term Load Management Program participation.

The Introduction to Load Management is mapped as a **load management** category relative to EMI's suggested learning paths.

Introduction to Load Management Cohort

Duration	One day
Day	Tuesday
Time	9 AM to 4 PM
Location	Virtual via Webex
Training Dates	10/27
Registration Deadline	September 30
Minimum Technology Requirements	Internet access Laptop or computer with minimum browser and OS requirements for Webex One of the following: a internal/built-in computer microphone, a headset with a microphone, or a mobile phone Webcam (optional)

*****To enroll, potential students should apply through the online registration portal at cuny.swoogo.com/emifall2020/begin*****

Cancellation Fee

If a City employee registers for Fundamentals but drops out before satisfactory course completion, a "No Show" fee of $400 may be assessed to their agency's training department in accordance with the CTC's cancellation policy.

Load Management Training and Coaching

building re-tuning, trend chart analysis, system optimization

four months

Course Structure

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

Load Management Training and Coaching (LMTC) is designed to provide building operators with hands - on support in implementing Load Management (LM) measures at your buildings to optimize HVAC system efficiencies. LMTC teaches operators how to utilize their real-time metering data, trending data from your Building Automation Systems and/or data loggers to apply Building Re-tuning (BRT) practices that are specific to their building. While LMTC is relatively new offering, on average, students who have participated in a similar training have achieved total energy consumption savings of 10% at their buildings.

The LMTC course consists of eight sessions over the course of four months (~19 weeks) taught by subject matter experts. The first three sessions consist of lecture and discussion, where the instructor brings together LM and BRT concepts. The following sessions consist of hands-on virtual coaching, during which the CUNY Building Performance Lab coaches and the DEM Load Management team work closely with students to identify and implement operational improvements at their specific buildings. Support for the completion of the assignments will be provided by BPL and DEM LM engineers.

Target Audience

LMTC is open to interested energy management staff, building operators, and facilities management staff at City buildings where the following is encouraged but not required:

- Have successfully completed BOC-1.
- Are assigned to and/or are responsible for at least one agency building where major equipment can be controlled.
- Can access trend logging functions in a BAS/ BMS throughout the duration of the course.

The Load Management Training and Coaching is mapped as a **load management** category relative to EMI's suggested learning paths.

LMTC Cohort B (starts 9/9)

Duration	Eight sessions over a span of four months
Day	Wednesdays
Time	9 AM to 12:30 PM
Location	Virtual
Training Dates	9/9, 9/23, 10/7, 10/21, 11/4, 11/18, 12/16 and 1/13
Registration Deadline	September 4
Minimum Technology Requirements	Internet access Laptop or computer One of the following: a internal/built-in computer microphone, a headset with a microphone, or a mobile phone Webcam (optional)

LMTC Cohort C (starts 11/15)

Duration	Eight sessions over a span of four months
Day	Thursdays
Time	9 AM to 12:30 PM
Location	Virtual
Training Dates	11/5, 11/19, 12/17, 1/14, 1/28, 2/11, 2/25 and 3/11
Registration Deadline	September 30
Minimum Technology Requirements	Internet access Laptop or computer One of the following: a internal/built-in computer microphone, a headset with a microphone, or a mobile phone Webcam (optional)

IMPORTANT NOTE:
Please note that DEM may prioritize staff at agencies targeted for near-term Load Management Program participation. In general, 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.

The DEM LM Team will work to confirm both that potential students meet the pre -requisites for the training offering and that their buildings are good near-term candidates for LM participation. Following this process, the DEM LM Team 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.

*****To enroll, potential students should apply through the online registration portal at cuny.swoogo.com/emifall2020/begin*****

Cancellation Fee

If a City employee registers for Load Management Training and Coaching but drops out before satisfactory course completion, a “No Show” fee of $1,875 will be assessed to their agency’s training department in accordance with the CTC’s cancellation policy.

DEM-offered Energy Training

The following additional 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	Schedule	Brief Description
Measurement and Verification Coaching ***in partnership with CUNY Building Performance Lab (BPL)***	To be determined	This coaching series is a combination of web-based, self-paced, online modules with short remote coaching sessions, discussing M&V concepts, techniques and use of calculation tools for various project stages. These sessions, conducted on an agency-by-agency basis, will enable participants to address specific building systems, measurements, and calculation tool integration.
Introduction to Capital Project Registration and Contracting	Fall, Spring, Summer	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	Fall, Spring	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.

Course	Schedule	Brief Description
Introduction to Energy Data and Tools	Fall, Spring, Summer	This training shows new and interested City staff how to acquire and report on the City of New York's energy consumption and cost data. This session, geared towards both building management and energy management staff, enables learners to navigate the EC3 and EnerTrac platforms, download and manipulate municipal energy reports for their agency, and create load profile baselines for their buildings.
Overview of Real-Time Metering	Quarterly or more	This session provides building operators and facility managers a brief background on RTM deployment efforts and progress, Local Law 45 of 2018, as well as a review of RTM components and visualization of energy use data via EnerTrac tool. Most importantly, participants will also learn how to take advantage of RTM technology and support DEM's energy efficiency programs by leveraging simple EnerTrac features.
Energy Billing Analytics	Spring, Fall	This session introduces City staff and energy liaison officers to fundamentals of energy billing concepts and the tools that will help them monitor and analyze energy data, with a focus on how to manage and conserve energy cost & usage at their agencies. Participants will be able to identify the benefits of energy data analysis, recognize various energy types' account and billing components, and utilize various platforms to interpret data and look for energy billing anomalies.

Field Equipment Lending Library (FELL)

The Field Equipment Library (FELL) 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. The FELL is jointly run by DEM and CUNY BPL.

What equipment does the FELL have?

The FELL 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. The FELL includes more than 1,200 items. These items include, 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.cunybpl.org/fell/.

Where is FELL located?

The FELL is mainly located at 31 Chambers Street, New York, NY 10007. The FELL 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 FELL?

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 Field Equipment Request 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 FELL?

FELL 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. FELL equipment demonstrations are also provided during the Learning Fairs and within specific EMI courses such as BOC-1, BOC-2, and LMTC.

Tips for a Successful Virtual Learning Experience

Even with the transition to online learning this semester, EMI's virtual classroom setting is still similar to a traditional classroom environment.

- Most sessions are "synchronous," meaning everyone participates live at the same time using virtual training technology.
- Most sessions will still take the same amount of time as an in-person training, in order to comply with third-party certification requirements.
- Most sessions will still have the same expectations on project deadlines, exams, and class participation.

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

Before the session

- **Test your equipment.** EMI courses have minimum requirements in order for a participant to be successful in a course, such as a reliable internet connection, a computer, and a working microphone.
- **Learn the technology.** EMI courses leverage many online platforms to store course resources, launch exams, and deliver virtual learning. Our team will hold orientation and walkthrough sessions to familiarize you with the learning tools, either prior to or during the first class. Additional resources are:
  - EMI online platform training guide
  - Webex How-to Videos:
    - How To Join a WebEx Meeting
    - How To Connect Audio and Video
    - How To Raise Hand
    - How To Join a WebEx Meeting from your Android Phone
    - How to Join a Cisco WebEx Meeting from an iOS Mobile Device

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 platform features to engage and connect 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 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. Our team will work with you to troubleshoot or identify possible accommodations.

After the session

- **Share feedback.** Provide honest responses about your experience through surveys or course evaluations.
- **Continue learning.** Take advantage of learning opportunities, such as other EMI courses, DCAS Citywide Training Center courses, and external forums and conferences, to maintain your certifications and expand your professional development.
- **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!

CUNY School of Professional Studies CUNY

Energy NYC DCAS Citywide Administrative Services

Fall 2020 Energy Management Institute Registration Form

Date _____

Applicant Information

Full Name _____
Last *First* *M.I.*

Agency _____

Work Phone _____ **Alternate Phone** _____

Work Email Address _____ **Alternate Email Address** _____

Civil Service Title _____**Work Title** _____

Work Address _____
Street Address *Unit/Floor*

_____
City *Borough* *Zip Code*

What is your highest level of education or training?

- ☐ High School
- ☐ Apprenticeship
- ☐ Technical College (Certificate or Associate's Degree)
- ☐ College (Associate's or Bachelor's Degree)
- ☐ College (Master's or above)
- ☐ Other_____

Are you requesting special accommodations in order to participate in this program?

- ☐ No
- ☐ Yes

If yes, please explain: _____

.....

Supervisor's Name _____

Supervisor's Phone # _____ **Supervisor's Email** _____

Supervisor's Civil Service Title _____ **Supervisor's Work Title** _____

Please complete and return application by email to EMItraining@sps.cuny.edu

CUNY School of Professional Studies CUNY

Energy NYC DCAS Citywide Administrative Services

Course Information

I would like to apply for:

Fundamentals of Building Systems Registration Deadline: 9/30

- ☐ **Virtual** Start Date: Tuesday, 10/06

Building Operator Certification Level 1 (BOC-1) Registration Deadline: 9/21

By selecting this course, I understand that this course is a combination of classroom sessions and online modules. I understand that I will be required to complete some of the course content from a computer.

By selecting this course, I also understand that I will be asked to take online assessments to measure my knowledge of basic Math and the use of Excel. If I score below 70% on these assessments, I will be required to take an online Math Refresher Course and an online Excel Refresher Course, which will help me in preparation for the BOC-1 course.

- ☐ **Virtual** Start Date: Thursday, 9/24

Building Operator Certification Level 2 (BOC-2) Registration Deadline: 9/30

Building Operator Certification Level 1 must have been completed in Fall 2019 or prior.

- ☐ **Virtual** Start Date: Friday, 11/20

Introduction to Load Management Registration Deadline: 9/30

- ☐ **Virtual** Start Date: Tuesday, 10/27

Load Management Training and Coaching Registration Deadline: 9/4 (Cohort B), 9/30 (Cohort C)

Building Operator Certification Level 1 must have been completed in Fall 2019 or prior, assigned to and/or are responsible for at least one agency building where major equipment can be controlled, and can access trend logging functions in a BAS/BMS throughout the duration of the course.

- ☐ **Cohort B, Virtual** Start Date: Wednesday (AM), 9/9
- ☐ **Cohort C, Virtual** Start Date: Wednesday (AM), 11/5

Signature of Applicant: _____ Date: _____

Signature of Supervisor: _____ Date: _____

Cancellation Policy

DCAS Energy Management covers the cost of City staff participation in order to improve the energy efficiency of building operations and maintenance. Requests for cancellations or schedule changes must be received in writing at least **7 business days prior to the start of a confirmed class by CUNY SPS**. Requests received without the required notice may result in a charge of the full course fee to the agency training department. Agencies may designate a qualified participant for substitution up to the commencement of the class without penalty. Please refer to the Citywide Training Center (CTC) Catalog for specific course fee information.

Please complete and return application by email to EMItraining@sps.cuny.edu

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