Energy Management Institute

Fall 2016 Course Catalog

DCAS Energy Management, in partnership with the City University of New York (CUNY) School of Professional Studies (SPS), CUNY Building Performance Lab (BPL) and the Citywide Training Center (CTC), is pleased to announce our schedule for courses for Fall 2016.

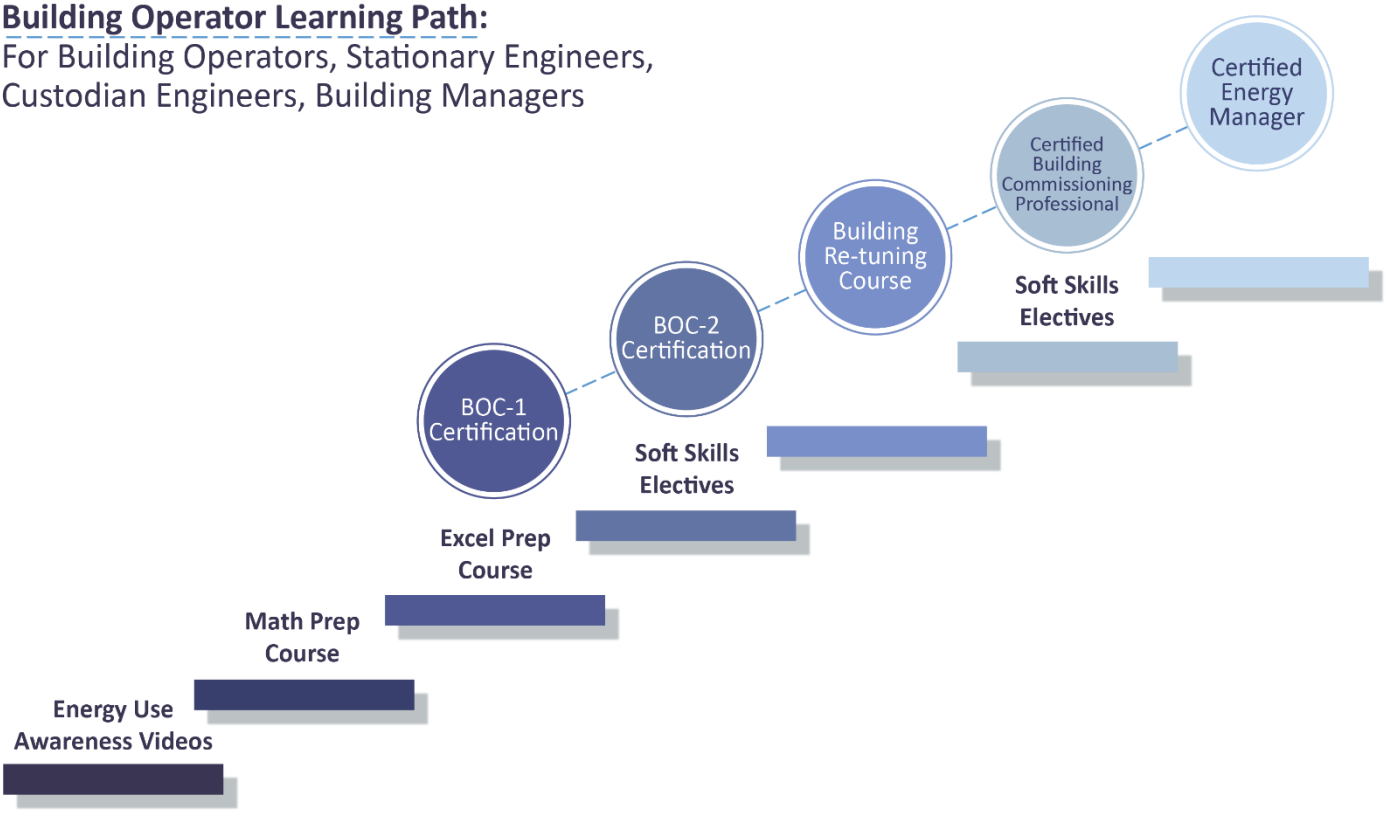
The goal of EMI is to prepare city facilities personnel to make energy-smart decisions that will assist the City in meeting its greenhouse gas (GHG) emissions reductions goals.

The EMI is designed to help facility professionals across city agencies envision a learning path specifically targeted for them.

Where do you stand on this learning path?

Building Operator Learning Path:

For Building Operators, Stationary Engineers, Custodian Engineers, Building Managers



Additional Offerings: Trade-specific auxiliary courses available for enrollment

- Energy Efficient Operations of Piping Systems
- Energy Efficient Operations of Electrical Systems
- Energy Efficient Operations of Controls Systems
- Energy Efficient Operations of Mechanical Systems
- Energy Efficient Operations of Plumbing Systems

PAGE	COURSE
4	Building Operator Certification (BOC) I
6	Building Operator Certification (BOC) II
8	Building Re-Tuning (BRT)
10	Energy Efficient Operations of Controls Systems

IMPORTANT:

DCAS Energy Management (DEM) covers the cost of city staff participating in this training to improve the energy efficiency of building operations and maintenance, and to encourage building staff to develop, implement and monitor energy efficiency projects. If a city employee registers for the course but drops out before satisfactory completion, a fee will be assessed to their agency's training department for "No Show" in accordance with the CTC cancellation policy. See course descriptions for respective fee amounts.

BUILDING OPERATIONS CERTIFICATION

Level I

Course Description

Building Operator Certification (BOC) Level I serves as the gateway training program of the Energy Management Institute. It is designed to help building operators manage their facilities to become more energy efficient as part of the City's efforts to meet its greenhouse gas reduction goals. The BOC Level I course is a competency-based training and certification program that prepares participants with the tools necessary to increase the energy efficiency of City facilities while maintaining comfort for the building occupants.

The course provides an overview of building systems including lighting, mechanical, and electrical systems and provides guidance to improve thermal comfort, air quality, and life-safety considerations.

The BOC Level I program offers a unique learning experience. Instruction is delivered both in a traditional classroom setting, as well as through self-paced, online modules via the Hughes Learning Management System.

The program is facilitated by a CUNY Subject Matter Expert Instructor with deep experience and knowledge in engineering, and the efficient operation of plants and equipment.

Two cohorts are offered for the Fall; one on Wednesdays at CUNY SPS, 119 W. 31st St., and one on Fridays at the Citywide Training Center, 1 Centre Street.

Course Overview:

Term:	Fall 2016
Days:	Wednesdays & Fridays
Dates:	**Cohort A*:** Sept 9 & 23, Oct 7 & 21, Nov 4 & 18, Dec 2, 9 & 16 **Cohort B**:** Sept 7 & 21, Oct 5 & 19, Nov 2, 16, & 30, Dec 7, & 14
Sessions:	9
Hours:	9AM-4PM
Locations:	*Citywide Training Center, 1 Centre Street, 24th Floor South Tower ** CUNY SPS 119 W. 31st Street
Code:	C7200
Registration Deadline:	August 8

Objectives

At the conclusion of this program, participants will be able to:

- Apply knowledge of building mechanical and electrical systems—HVAC equipment and controls, electrical distribution, motors, and lighting–and how their operation relates to energy efficiency performance and building comfort conditions;
- Recognize system configurations, drawings of schematics, observation and interpretation of operating conditions;
- Develop strategies for systematic maintenance and performance monitoring.

Who Should Enroll

The course is designed for building operators who may have limited formal systems training, but have substantial work experience in building systems. This course is also beneficial to facility managers who have entered the field from a management background and seek to improve their understanding of physical and equipment principles.

Course Materials

On the first day of training, each participant will receive a course binder, textbooks published by the Building Operator Certification program and a copy of Energy-Efficient Operation of Commercial Buildings: Redefining the Energy Manager's Job by Peter Herzog.

Grading & Certification

To earn the nationally recognized Building Operator Certification Level 1 credential, participants must:

- Attend and participate in 8 of the 9 in-class sessions
- Satisfactorily complete the 14 on-line lessons
- Take and pass 4 exams, and
- Submit 4 practical project assignments which focus on applying concepts studied in class to the facilities where the participants work

Video Prerequisites

Available via the DCAS DEM website: http://www.nyc.gov/html/dem/html/home/home.shtml

- **Saving Energy In NYC; It's All About Us!**
- **Advice from NYC's Operations & Maintenance Champions**

Prep Courses:

- After applying, CUNY will send the employee links to two mandatory skills assessments (Math and Microsoft Excel).
- Both assessments take about 15 minutes each to complete.
- Students' scores will determine if they also need to take the online, self-paced prep courses prior to their BOC-Level I start date.

Elective Courses:

- **Communication Skills for Technical Professionals**
- **Outlook 2013 Level 1**
- **Writing Effective and Efficient E-mails**

IMPORTANT:

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

BUILDING OPERATIONS CERTIFICATION

Level II

Course Description

For those who have completed BOC Level 1, this advanced program provides an opportunity to deepen building performance skills, while working towards earning **the BOC Level 2** credential. This 16 week, 4 module course leverages self-paced, on-line learning modules so employees only need to be in the classroom every other week.

DEM offers this program to help prepare building operators and stationary engineers for energy efficient facility operations that meet the city's greenhouse gas reduction goal.

The BOC Level 2 course is a competency-based training and certification program that will teach participants the tools necessary to increase building efficiency, comfort, and improve their job skills.

Objectives

At the conclusion of this program, participants should be able to:

- Collect facility operating data for monitoring and troubleshooting of operations;
- Identify sophisticated controls and control strategies;
- Identify, diagnose and correct control errors;
- Use energy data to maintain high levels of building performance;
- Select and apply maintenance strategies and techniques.

Course Overview:

Term:	Fall 2016
Days:	Fridays
Dates:	Sept 16 & 30, Oct 14 & 28, Nov 4 & 18, Dec 2 & 9
Sessions:	8
Hours:	9AM-4PM
Location:	Citywide Training Center, 1 Centre Street, 24th Floor South Tower
Code:	C7202
Registration Deadline:	August 8

Blended Learning Format

- Four (4) Self- Paced On-Line Modules:
  - Best Practices for High Performance Operations & Maintenance
  - HVAC Controls Optimization
  - Electrical Maintenance & Troubleshooting
  - Boiler Plan & Hydronic System High Performance O&M

- Synchronous Virtual Sessions – Each of the four modules begins with a 1-hr, web-based meeting, where participants connect with their instructor to discuss the content to be covered in the upcoming module to ensure they are fully prepared for what is expected of them to succeed.

- Classroom Instruction – Two (2) full days during each module allows participants to walk through the technical curriculum with CUNY Subject Matter Experts, as well as learn from peers at other City agencies.

Who Should Enroll

Employees who have already earned the BOC Level I credential at least one year prior to registering for BOC II.

Course Materials

On the first day of training, each participant will receive a course binder, a complete set of BOC Level 2 Handbooks, and additional study materials.

Grading & Certification

To earn the nationally-recognized Building Operator Certification Level 2 credential, participants must:

- Attend 7 of the 8 in-class sessions
- Satisfactorily complete the 4 on-line lessons
- Take and pass 4 exams
- Submit 4 practical project assignments which focus on applying concepts studied in class to the facilities where the participants work

Prerequisites

- **BOC Level I Credential**

Elective Courses:

- **Fundamentals of Supervision**
- **Communications Skills for Technical Professionals**
- **Writing Effective and Efficient E-Mails**
- **Building Positive Workplace Relationships**

IMPORTANT:

If a city employee registers for the course but drops out before satisfactory completion, a fee of $1,875 will be assessed to their agency training department for “no show” in accordance with CTC cancellation policy.

BUILDING RE-TUNING TRAINING

Course Description

Building Re-Tuning (BRT) training is designed to give building operators advanced training in analysis of facility operations to further identify efficiency improvements.

The BRT course is offered as 5 in-class sessions that include integrated project-based work that is completed by participants in between classroom meetings. The course is aimed at operators and managers with previous energy management training (BOC Level 1 and/or BOC Level 2, Certified Energy Manager, etc.)

BRT is designed to teach participants the skills that are needed to conduct a re-tuning of facilities that use a BAS/BMS system.

The course is designed to walk participants through the BRT process from foundational concepts through an initial BRT tune-up. Topics include:

- What BRT involves
- How to obtain operational data from the BAS to create graphs and charts
- How to analyze the data to diagnose operational problems and uncover no-cost and low-cost improvement opportunities in equipment operations.

BRT training requires hands-on implementation practice in the participants' facilities.

NOTE: participants must be able to access trend logging functions in a BAS/BMS.

Course Overview:

Term:	Fall 2016
Days:	Thursdays
Dates:	Oct 27 Nov 3, 10 & 17 Dec 1
Sessions:	5
Hours:	9AM-12PM
Location:	Citywide Training Center, 1 Centre Street, 24th Floor South Tower
Code:	C7300
Registration Deadline:	September 23

Objectives

At the conclusion of this course, participants will be able to:

- Explain the overall BRT process from start to finish
- Identify how BRT protocol relates to retro-commissioning and continuous commissioning concepts/practices.
- Create trend logs using BAS data collection function.
- Create graphic displays from BAS/BMS data using basic methodologies
- Interpret graphical trend data for diagnostics and identification of energy reduction/optimization opportunities.

Who Should Enroll

This course is designed for building operators with previous energy efficiency/energy management training. It is also beneficial to facility managers who have entered the field from a management background and seek to gain skills in data-driven facility diagnostics. Participants should have a working knowledge of energy efficiency in building systems and the **ability to access trend log functions in their facility's BAS/BMS**.

Grading & Practical Projects

Participants will be evaluated based on their ability to conduct an initial BRT project, using BAS/BMS data, in discrete steps during the five weeks of the course.

Course Materials

Each participant will receive a course handbook based on materials from the Pacific Northwest National Lab and access to on-line study materials.

The field project component will be conducted over the course of the 5-week program.

CUNY student engineering interns will be available to assist with various aspects of the project, especially related to new graphing software applications.

Prerequisites

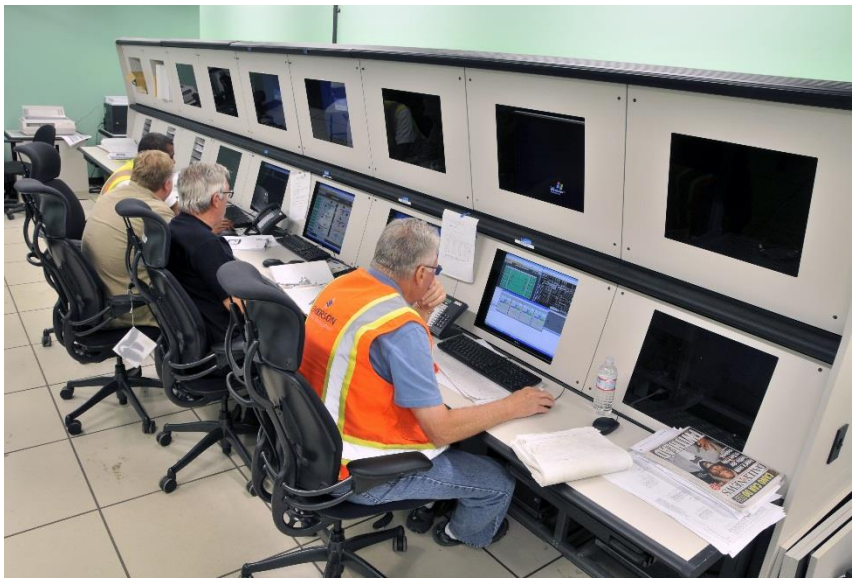
- **BOC Level I Credential**

Elective Courses:

- **Fundamentals of Supervision**
- **Communications Skills for Technical Professionals**
- **Writing Effective and Efficient E-Mails**
- **Building Positive Workplace Relationships**

IMPORTANT:

If a city employee registers for the course but drops out before satisfactory completion, a fee of $975 will be assessed to their agency training department for "no show" in accordance with CTC cancellation policy.



ENERGY EFFICIENT OPERATIONS of CONTROLS SYSTEMS

Course Description

Facility personnel trained in control systems play a critical role in managing energy at agencies across the city. Proper operation and maintenance of the pneumatic and DDC systems in city owned and managed buildings dictate whether or not our greenhouse gas emission reduction goals are met.

To ensure City controls operators' know the full range of energy savings strategies available, DCAS Energy Management engaged CUNY to deliver a customized training program that involves in-classroom instruction, as well as self-paced online courses.

Blended Learning Format

This program has been designed to maximize employee skill building while being sensitive to the need for the controls operators' to be in the field responding to work orders.

Five (5) in-classroom training sessions will be complimented with self-paced, online lessons. The participants will be given access to the online learning system, and instructors and help desk personnel at CUNY SPS. They will be available to support employees during training if they experience any log-on issues.

Course Overview:

Term:	Fall 2016
Days:	Tuesdays
Dates:	Nov 1, 15 & 29 Dec 6 & 20
Sessions:	5
Hours:	8:30AM–3:30PM
Location:	CUNY SPS 119 W. 31st Street
Code:	C7106
Registration Deadline:	October 3

Objectives

Upon completion of this course participants will be able to:

- Identify the differences between single input versus multiple input pneumatic receiver controllers
- Explain variable speed drive, control valve and control damper applications
- Complete assigned daily work orders in the most energy efficient manner possible
- Perform planned maintenance that will extend equipment life and reduce repairs
- Protect your personal safety and the safety of those around you
- Communicate more effectively with building occupants, colleagues and supervisors

Who Should Enroll

Any Thermostat Repairer, TR Supervisors or other facility personnel working on controls systems in City agencies.

Course Materials

Each participant will receive a course handbook on the first day of training.

Video Prerequisites

Available via the DCAS DEM website: http://www.nyc.gov/html/dem/html/home/home.shtml

- **Saving Energy In NYC; It's All About Us!**
- **Advice from NYC's Operations & Maintenance Champions**

IMPORTANT:

If a city employee registers for the course but drops out before satisfactory completion, a fee of $750 will be assessed to their agency training department for "no show" in accordance with CTC cancellation policy.

Department of Citywide Administrative Services
Energy Management

The City University of New York