



Overview

Gwinnett Technical College's **BUILDING OPERATOR CERTIFICATION (BOC®)** is a **nationally-recognized competency-based training and certification for building operators to improve the energy efficiency of their buildings.** This program is the first of its kind offered in the state of Georgia. The program is exclusively available through Gwinnett Technical College.

Operators earn certification by attending training and completing project assignments in their facilities. Training topics include facility electrical, HVAC and lighting systems, indoor air quality, environmental health and safety, and energy conservation.

BOC certification provides a credential for professional development and opportunities for advancement in the workplace. Fifty percent of operators report increased compensation following achievement of their BOC certification.

BOC improves the professionalism of facility departments. Employers report increased respect from building occupants and tenants by equipping operators with the skills to be more responsive to complaints about air quality and comfort control. BOC saves money for companies by improving the energy efficiency of heating and cooling systems, and enabling operators to be proactive in compliance with environmental regulations affecting facility operations and maintenance, while meeting building owners' initiatives for sustainability and emission reduction.

BOC certification is recognized by employers in over twenty states as certification of value and benefit for operators in their organization.

Program Sponsors:





Benefits of BOC Training

Company Benefits from BOC

Having BOC certified operators translates to **improved energy performance** in the building and a preventive maintenance program that improves the building environment and prolongs equipment life.

The BOC certification is a means for employers to identify qualified operators and to recruit them to work in their buildings. **BOC certified operators offer capability and productivity through enhanced job skills.**

Third party evaluations of the BOC show employers look for the certification on resumes and recommend the certification to others. In a long term follow-up, **over 80% of employers found the BOC useful to their employees.**

Energy and Monetary Benefits from BOC

Evaluation research shows BOC certified operators are saving money and energy in their facilities. BOC operators apply concepts learned in training and undertake measures such as large energy conservation projects and IAQ improvements. **Average annual per participant energy savings are estimated by this research to be 172,000 kWh per year, equivalent to \$12,000 annually at national electricity rates.**

Facility Department Benefits from BOC

Having BOC certified operators in a facility raises the profile and stature of maintenance departments with an organization's management. BOC operators have received **cross-training in a broad array of building systems.** Their knowledge of total facility operations offers increased credibility with building tenants and occupants.

BOC training also **increases operator capability to identify and implement energy savings projects that result in lower operating costs** and often, improved comfort in the facility.

Participants Benefits from BOC

BOC certification provides operators with a means of **distinguishing themselves to employers** through improved job skills and a commitment to the profession. **Over 50% of BOC graduates report both an increase in job responsibilities and compensation since receiving the certification.**

Upon successful completion of BOC training, **operators receive a BOC certificate and identification card,** a letter of achievement sent to their employer, **a national registration of their certification,** and a newsletter offering technical articles and continuing education opportunities.



BOC Course Schedule

BOC Level I is intended for those with two or more years of experience in building operation and maintenance, who wish to broaden their knowledge of the total building system. **BOC Level II** is intended primarily for operators who have been certified at BOC Level I and who want more advanced training

Course Certification

To receive BOC Level 1 certification, participants must attend seven Level 1 classes (74 hours), and successfully complete open book tests and facility on-site projects. To receive BOC Level II certification, participants must attend six Level II classes (61 hours), and successfully complete open book exams and facility on-site projects. The classes will be held from 8:00 am to 4:00 pm BOC 102 & 103A&B are 7:30 am to 4:30pm) at Gwinnett Technical College, 5150 Sugarloaf Parkway, Lawrenceville, GA 30043. The cost for Level 1 training is \$1375 which includes all textbooks, certification fees, etc.

LEVEL I (CLASS SCHEDULE)

BOC 101 – Building Systems Overview	<u>DATE</u> August 4, 2010
BOC 107 – Facility Electrical Systems	August 25, 2010
BOC 102 – Energy Conservation Techniques	September 15, 2010
BOC 103A – HVAC Systems & Controls	October 6, 2010
BOC 103B – HVAC Systems & Controls	October 7, 2010
BOC 104 – Efficient Lighting Fundamentals	October 27, 2010
BOC 105 – O&M Practices for Sustainable Buildings	November 17, 2010
BOC 106 – Indoor Air Quality	December 8, 2010

LEVEL II (CLASS SCHEDULE)

BOC 201 – Preventative Maintenance & Troubleshooting Principals	<u>DATE</u> Winter 2011
BOC 202 – Advanced Electrical Diagnostics	Winter 2011
BOC 203A – HVAC Troubleshooting & Maintenance	Winter 2011
BOC 203B – HVAC Troubleshooting & Maintenance	Winter 2011
BOC 204 – HVAC Controls & Optimization	Winter 2011
BOC 214 – Introduction to Building Commissioning	Winter 2011
BOC 216 – Enhanced Automation & Demand Reduction	Winter 2011

Find additional Building Operator Certification (BOC®) information at Gwinnett Technical College Office of Continuing Education at 678/226-6502 or website:

<https://aceweb.gwinnettech.edu/wconnect/CourseStatus.awp?~~104SEM1993A>



BOC Level 1

Course Descriptions

BOC 101 – Building Systems overview

Provides overview of preventive maintenance, energy efficiency principles, and fundamentals of building systems, equipment, and operations. Reviews heating, cooling ventilation and control systems, water, lighting, and indoor air quality. covers system interaction and relationship to overall building performance. Provides foundation for Level I certification course. Participants can expect to learn how to begin to assess their own facilities with respect to energy conservation and are required to complete a project that will begin the process to more energy-efficient management at their own facilities. **One day**

Project: Facility and Equipment Floor Plan

BOC 102 – Energy Conservation Techniques

Helps operators gain a better understanding of how energy is used in commercial buildings and how to identify and prioritize conservation opportunities. Includes basic principles of energy accounting, evaluation of fuel options, operation and maintenance strategies to improve efficiency, and energy management planning techniques. participants will learn how to perform quantifiable evaluations of their facilities energy use in order to be able to target prospects for energy conservation. **One day**

Project: Energy Use Profile

BOC103-HVAC Systems and Controls

Focuses on operation and maintenance of equipment and components typically found in commercial buildings, including central heating, cooling, air and ventilating systems in buildings, provides introduction to automatic control systems and equipment, particularly for central air systems. Emphasis on group problem solving and exercises with respect to preventive maintenance. Participants will learn to target possible inefficiencies in their HVAC systems and to be able to evaluate potential solutions **Two days**

Project: Heating System Operational Review

BOC 104-Efficient Lighting Fundamentals

Covers lighting fundamentals and types of lighting for economical and energy efficient lighting systems. Participants learn principles of efficient lighting including evaluation of lighting levels, quality and maintenance. Other topics include lighting fixture and control technologies, common upgrades, retrofit and redesign options, and management strategies as they apply to space use and function. **One day**

Project: Lighting Survey for Facility

BOC 105-Operation & Maintenance Practices for Sustainable Buildings.

Provides an overview of best O&M practices for green or high performance buildings and addresses exterior site issues, water efficiency, cleaning products, material and supply purchasing, energy and indoor environmental quality. National green building rating systems such as LEED and tools through ENERGY STAR for evaluating the sustainability of the existing buildings are also explored. Participants will learn to identify and apply O&M practices for improving the performance of both existing buildings and newly designed green buildings **One day**

BOC 106 - Indoor Air Quality

Introduces the basic causes of indoor air quality problems and begins to develop a method of diagnosis and solution. Students will gain an understanding of the dynamic components of indoor air quality in relation to source control, occupant sensitivity and ventilation. Emphasis will be placed on communications with building occupants for reliable Investigations without aggravating existing issues. **One day**

BOC 107 - Facility Electrical Systems

Develops an understanding of how electricity is distributed in a facility. Participants will learn the fundamentals of electricity and its application to the workplace with the goal of highlighting and working to resolve common electrical distribution problems. **One day**

Project: Electrical Distribution Sketch for Facility



Accreditation

NATIONAL ACCREDITATION

BOC is accredited for continuing education by the following organizations.

- The Building Owners and Managers Institute (BOMI) accepts BOC classes for Continuing Professional Development (CPD) points towards renewal of the professional designations offered by BOMI Institute
- The American Hotel and Lodging Educational Institute recognizes BOC classes for continuing education points for the Certified Engineering Operations Executive (CEOE) recertification program
- The National Association of Power Engineers (NAPE)
- National School Plant Management Association (NSPMA) members are eligible for training and credentialing opportunities through the BOC program



BOC has been approved as an Authorized Provider by the [International Association for Continuing Education and Training \(IACET\)](#), 1760 Old Meadow Road, Suite 500, McLean, VA 22102. In obtaining this approval, the BOC has demonstrated that it complies with the ANSI/IACET 1-2007 Standard which is widely recognized as a standard of good practice internationally. As a result of their Authorized Provider membership status, BOC is authorized to offer IACET CEUs for its programs that qualify under the ANSI/IACET 1-2007 Standard.



Recognition

MAJOR EMPLOYERS

Major employers across the country are sending operators to BOC training for certification. Since 1996, over 5,000 operators have earned BOC certification. Awareness of BOC certification is as high as 45% among employers in many regions. Below is a sample of employers by sector who are participating in BOC.

Manufacturing

Boeing Company, Cisco Systems, Weyerhaeuser Company, Immunex, Sharp Electronics, Frito Lay, Hewlett Packard, Corning

Government

U.S. Army, Navy, Air Force, and Coast Guard, General Services Administration, U.S. Postal Service, Federal Aviation Administration, National Oceanographic Administration, State facilities in California, Oregon, Idaho and Washington

Education

Over 130 school districts, community colleges, and universities nationally.

Hospitality

Doubletree Hotels, Ramada Inns, Marriott

Health Care

Brigham and Woman's Hospital, VA Medical Centers, Providence Health System

Property Management

Boston Housing Authority, Cushman & Wakefield, Melvin Mark Co., Sabey Corporation, K&S Property Management

Retail

Home Depot, Sears, IKEA

Municipalities

Over 20 municipal and county government facilities, libraries and park & rec districts.

