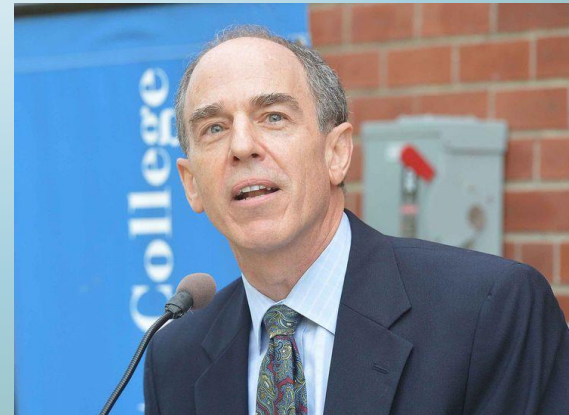
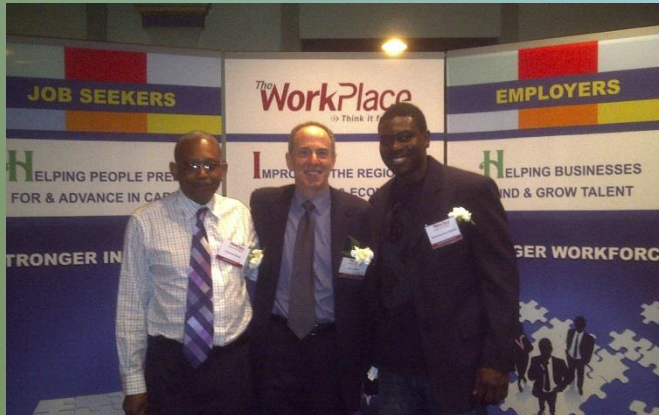




BUILDING EFFICIENCY & SUSTAINABLE TECHNOLOGY CERTIFICATES AND DEGREES

Eric Gribin, MS
Director, BEST Programs
College of Technology, Tunxis Community College





BUILDING EFFICIENCY & SUSTAINABLE TECHNOLOGY PROGRAMS

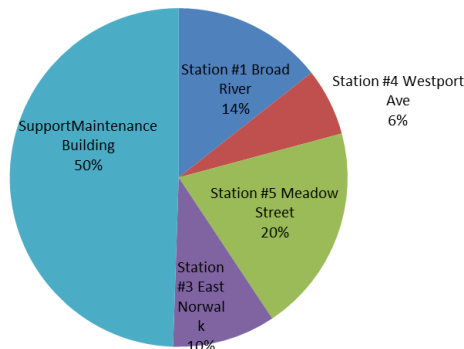


2014 MUNICIPAL ENERGY FELLOWSHIPS

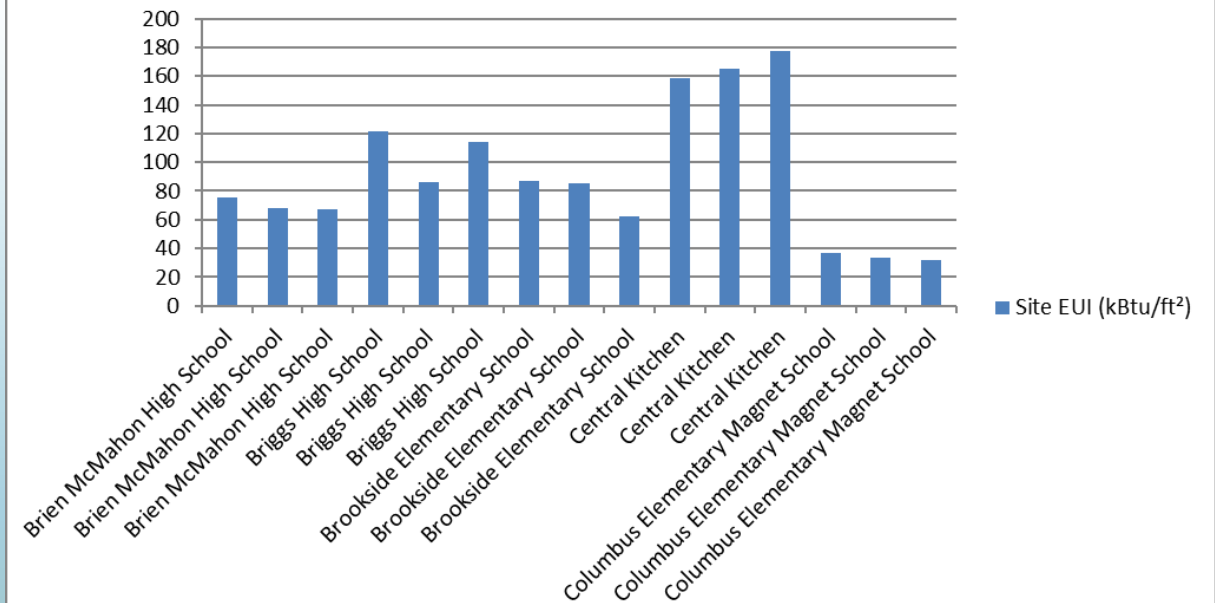
- City of Bridgeport
- City of Norwalk
- City of Waterbury
- Town of Ridgefield
- Town of Wilton

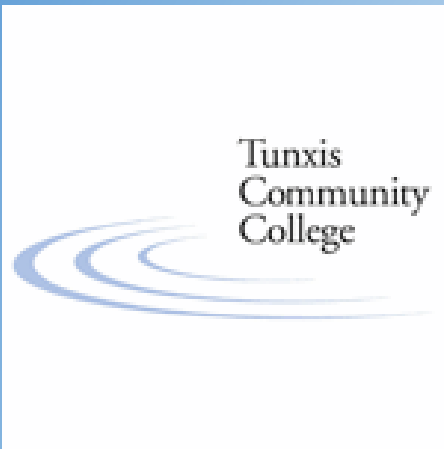


2014 Energy Cost (\$)



2013-2012-2011 Site EUI (kBtu/ft²)





Energy Management Program Applied Associate of Science AAS Degree

Funding provided by the U.S. Department of Energy, State Energy Program
administered by the Connecticut Department of Energy and Environmental Protection
(DEEP).



For more than 30 years the Lane Energy Management Program has been a national leader for curriculum, courses, and activities, preparing hundreds of undergraduate students and professionals for jobs and careers in the energy field.

The Energy Management program is a rigorous two-year Associate of Applied Science degree that trains individuals to evaluate energy use patterns; develop, implement, market and maintain conservation programs; perform public outreach; recommend energy efficiency techniques; integrate alternative energy sources; and perform systems analysis to solve problems.

Students learn to apply basic physics and analytical techniques to measure and define energy use of today's building systems with the goal of evaluating and recommending alternative energy solutions that will result in greater energy efficiency and lower energy costs.

Earn \$38,000-45,000 annually while helping to create a positive change within our built

As energy related issues continue to increase, more voluntary and mandatory energy conservation opportunities are being created that require a technical skill set like that which is offered

EXPLORING THE BUILT ENVIRONMENT

Students are exposed to a multitude of building system types and configurations through the extensive use of tours and internship opportunities.



Application or Additional Information

Roger Ebbage - Program Director
(541) 463-6160 | ebbager@lanecc.edu

Lane Community College
Downtown Campus | 101 West 10th Ave
Eugene, Oregon 97401



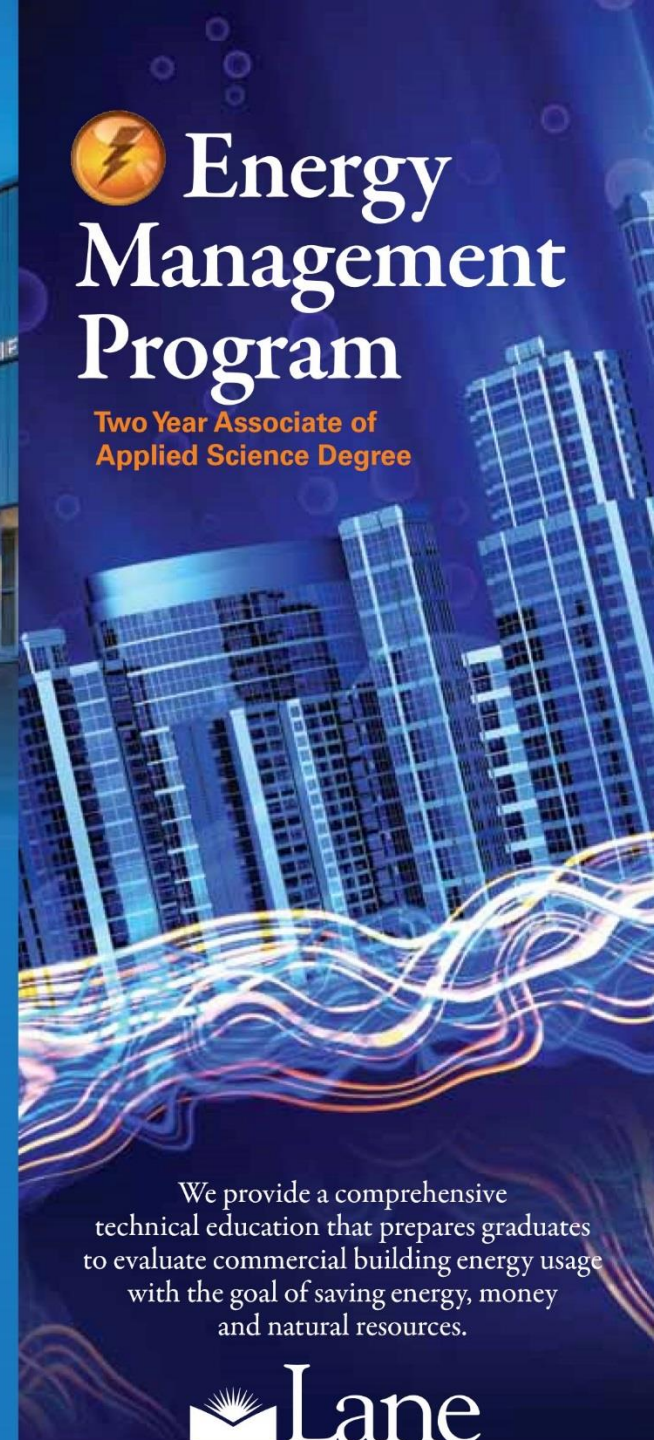
NWEEI provides professional development opportunities throughout the Northwest, Nationally and Internationally.

This information is available in alternate formats upon request by contacting Disability Services at (541) 463-5150 (voice), (541) 463-3079 (TTY), or disabilityservices@lanecc.edu (email).

Lane Community College is an equal opportunity/affirmative action institution.

Energy Management Program

Two Year Associate of Applied Science Degree



We provide a comprehensive technical education that prepares graduates to evaluate commercial building energy usage with the goal of saving energy, money and natural resources.



Graduates Of The Program Are Able To



- » Evaluate energy use patterns of residential and commercial buildings.
- » Recommend energy efficiency and renewable energy solutions for high energy consuming buildings.



- » Understand the interaction between energy consuming building systems and based on that understanding make energy consumption recommendations.

- » Produce energy evaluation technical reports and make presentations leading to project implementation.

- » Develop and evaluate inferences and predictions that are based on collected data.



- » Read and analyze building blue prints including floor, mechanical, and electrical plans.

- » Use problem-solving techniques & mathematics to transform concepts into energy related projects.

Buildings consume 70% of all the electricity produced in the U.S. Advancing energy efficiency in buildings is a critical component of a secure, economically advantageous energy balance leading toward a more sustainable future.

Our Goal is Your Success!

After completing the program, your goal will be employment and we take that very seriously. We continually seek out and participate in local, regional, and national networking opportunities for one simple reason - to promote our students directly to those who have the ability to provide jobs.

By providing you with a quality education built around an industry approved job task analysis we are extremely confident that you will be successful.

Graduates find employment in a wide variety of disciplines and may work for such diverse employers as engineering firms, lighting companies, public and private utilities, energy equipment companies, and departments of energy.

Some relevant job titles are:

Energy Program Specialist, Manager, Coordinator
Energy Auditor, Analyst, Specialist
Commissioning Technician
Facility Manager
Control System Specialist
Building Operator
Weatherization Installer and Technician



"If someone asked us to guess how much time it'll take to get to the store, or how much a car weighs, or how tall a house is, we'll probably be pretty close. But ask us about energy, and we can be wrong by many orders of magnitude."

(Clark Williams-Derry, Sightline Institute)

Jon Wiener AIA, LEED AP at SRG points out a few energy saving features within a newly built high performance classroom located on Lane Community College campus.

Note: Required Cooperative Education internships may also be taken during the summer (a maximum of 18 co-op credits).

Prerequisites are required for some courses. Up to date course descriptions are located in the Lane Community College Annual College Class Catalog.

1. Must be completed during first year.
2. Physical Education Activity/Health requirement: 3 credits total.
3. Human Relations/Social Science requirement: 3 credits total.
4. Directed electives to be arranged with program advisor.

Degree Overview

The classes listed below are subject to change. For the most current information, see AAS degree requirements within Lane Community College's annual catalog.

YEAR 1 CLASSES

FALL TERM	CReditS
Microsoft Excel for Business	4
Blueprint Reading: Residential & Commercial	3
College Algebra (MTH 111) ¹	5
Introduction to Energy Management	3
Sustainability in the Built Environment	3
Fundamentals of Physics (PH 101)	4
Total	22

WINTER TERM	CReditS
Residential/Light Commercial Energy Analysis	3
Alternative Energy Technologies	3
Co-op Ed: Energy Conservation Seminar	1
Fundamentals of Physics (PH 102)	4
Introduction to Academic Writing	4
Human Relations at Work ³	3
Total	18

SPRING TERM	CReditS
Air Conditioning Systems Analysis (NRG 121)	3
Energy Efficient Methods	4
Lighting Fundamentals	3
Technical Writing	4
Total	14

YEAR 2 CLASSES

FALL TERM	CReditS
Commercial Air Conditioning Systems Analysis (NRG 122)	3
Lighting Applications	3
Energy Investment Analysis	3
Directed Electives ⁴	3
Physical Education/Health Requirements ²	1-3
Total	13-15

WINTER TERM	CReditS
Commercial Energy Use Analysis	4
Energy Control Strategies	4
Co-op Ed: Energy Management Seminar 2	1
Physical Education/Health Requirements ²	1-3
Directed Electives ⁴	3
Total	13-16

SPRING TERM	CReditS
Building Energy Simulations	4
Energy Accounting	3
Co-op Ed: Energy Management	6
Total	13

Sign Up For The Program. It's Easy!

Fill out a simplified one page application. A high school diploma (or equivalent) and Math 70 (Basic Algebra) is all that is required for entry.

Additional details online at:
<http://www.nweei.org>

NORWALK COMMUNITY COLLEGE
BUILDING EFFICIENCY & SUSTAINABLE TECHNOLOGY (BEST) PROGRAMS
ENERGY MANAGEMENT INDUSTRY ADVISORY GROUP
MAY 6, 2014

ATTENDEES

COMPANY

- | | |
|---------------------|--|
| 1. Lisa Schoonerman | Siemens |
| 2. Tim Forrest | Siemens |
| 3. John Matchett | Connecticut Light & Power Company/Yankee Gas |
| 4. James Daylor | Amersco |
| 5. Tim Maurer | NxGen |
| 6. David Valerie | Strategic Building Solutions |
| 7. Ian Graham | Vidaris, Inc. |
| 8. Emma Stanley | Vidaris, Inc. |
| 9. Diane Duva | CT State Department of Energy & Environmental Protection |
| 10. Tom Nichols | 4 Elements Group |
| 11. Roger Ebbage | Northwest Water & Energy Education Institute |
| 12. Josh Manders | Northwest Water & Energy Education Institute |
| 13. Eric Gribin | Norwalk Community College - BEST Programs |
| 14. Radu Tarta | Norwalk Community College – BEST Programs |

By Phone

- | | |
|------------------------|---|
| 15. Judy Resnick | Connecticut Business & Industry Association |
| 16. Christopher Halpin | Celtic Energy |

MARKET ANALYSIS – THE NEED...



O*NET OnLine

Browse by Green Economy Sector



The green economy will cause a change in occupations' employment demand or work and worker requirements such as tasks, skills, knowledge, and credentials. Green occupations are linked to Green Economy Sectors.

Energy Efficiency [Save Table \(XLS/CSV\)](#)

This sector covers activities related to increasing energy efficiency (broadly defined), making energy demand response more effective, constructing "smart grids," and other energy efficient activities.

Green New & Emerging	13-1199.01	Energy Auditors	☀️ Bright Outlook	🌿
Green New & Emerging	17-2199.03	Energy Engineers	☀️ 🌿	



Analysis of Job Creation and Energy Cost Savings From Building Energy Rating and Disclosure Policy

Andrew C. Burr
Cliff Majersik
Sarah Stellberg
Institute for Market Transformation

Heidi Garrett-Peltier
Political Economy Research Institute

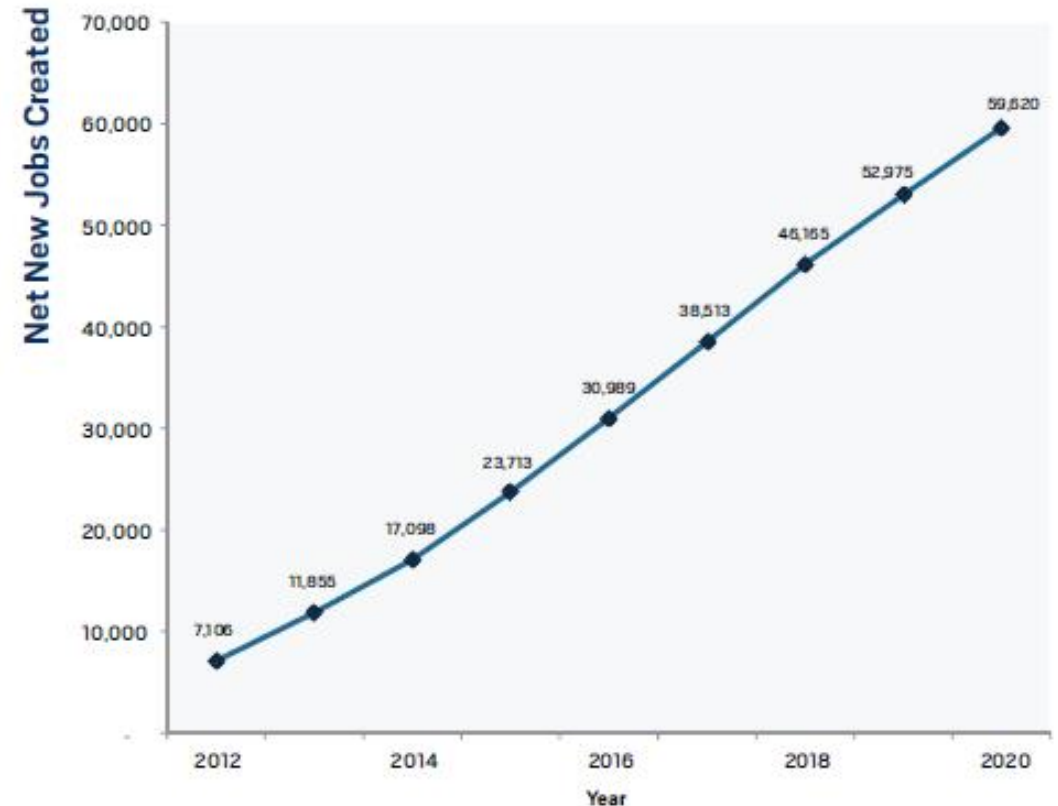
March 2012



Summary of Results

This study analyzes the potential of a national building energy rating and disclosure policy to create jobs and reduce energy-related expenditures in commercial and multifamily residential buildings. The analysis predicts such a policy would yield the following results:

Figure 1. Annual Employment Estimates



¹ Institute for Market Transformation. "Building Energy Transparency: A Framework for Implementing U.S. Commercial Energy Rating and Disclosure Policy." July 2011.

Available at http://www.buildingrating.org/Building_Energy_Transparency_Implementation_Report

CONNECTICUT ENERGY WORKFORCE ASSESSMENT

Building the Future Energy Workforce



Study commissioned by the CT Business & Industry Association (CBIA) Education Foundation, and the CT Dept. of Energy & Environmental Protection (DEEP)



CLEAN ENERGY
FINANCE AND INVESTMENT AUTHORITY



Contact:

Deborah Burns, 203.257.3163

deborah@burnscommunications.net

**C-PACE MARKS SUCCESSFUL FIRST TWO YEARS AS CONNECTICUT PROPERTY OWNERS
TAKE ADVANTAGE OF PROGRAM TO FINANCE MONEY-SAVING ENERGY IMPROVEMENTS**

Over \$65 Million Allocated for Over 90 Projects; Buildings Receiving New Financing Tripled from 2013 to 2014

ROCKY HILL, Connecticut, Feb. 3, 2015 -- Two years after it was launched, the Commercial Property Assessed Clean Energy (C-PACE) program is rapidly gaining traction with commercial property owners in Connecticut, who are utilizing its long-term financing to fund valuable energy improvements with no upfront costs and immediate energy savings.

The Connecticut Green Bank (formerly the Clean Energy Finance and Investment Authority, or CEFIA), which administers C-PACE, today reported major program success.



Lead By Example - Energy Efficiency for State and Local Government

Visit [**LBE's Energy Savings Performance Contracting Program**](#) for more information on this new program to help state agencies and municipalities achieve significant energy reductions.

Visit [**LBE for State Agencies**](#) for more information on how state agencies can take advantage of energy-savings measures through the Lead by Example program.

Visit [**LBE for Municipalities**](#) for more information on how Connecticut towns and cities can utilize Lead by Example programs to reduce energy consumption at a local level.

Local Law 87

Download the [Local Law 87 Guide & Whitepaper](#)

Overview of NYC Local Law 87

Local Law 87 (LL87) is part of New York City's Greener, Greater Buildings Plan (GGBP) that was signed into effect by Mayor Michael Bloomberg in December 2009 with the goal of tackling energy efficiency issues in buildings with large occupancy levels. NYC Local Law 87 mandates that all buildings having 50,000 square feet or more of covered space undergo an energy audit every 10 years as well as retro-commissioning. This requirement also applies to two or more buildings, on the same tax lot or condo board, that together exceed 100,000 square feet.



Building Energy Reporting and Disclosure Ordinance

In 2013, the City of Boston enacted the Building Energy Reporting and Disclosure Ordinance (BERDO). This Ordinance requires Boston's large- and medium-sized buildings to report their annual energy and water use to the City of Boston, after which the City makes the information publicly available. Additionally, every five years, buildings need to complete an energy assessment or energy action; exemptions are provided for buildings that are already efficient or are making significant progress on energy efficiency.

Energy Management Program

Student Learning Outcomes

- Evaluate the energy use patterns for residential and commercial buildings
- Recommend energy efficiency and alternative energy solutions for high-energy consuming buildings.
- Understand the interaction between energy consuming building systems and make recommendations based on that understanding.
- Produce energy evaluation technical reports and make presentations for potential project implementation.
- Collect and display data as lists, tables and plots using appropriate technology
- Read and analyze building blueprints, including floor, mechanical and electrical drawings.
- Use problem-solving techniques and mathematics to transform concepts into energy related projects.

Existing Courses and New Courses:

Existing Courses:

1. Environmental Systems
2. Blueprint Reading
3. Alternative and Renewable Energy
4. Building Efficiency Auditing
5. Sustainable Energy for Residences and Businesses

New Courses:

1. Commercial HVAC Systems and Analysis
2. Energy Efficiency Methods
3. Energy Control Strategies
4. Lighting Fundamentals & Applications
5. Energy Investment Analysis of Energy investments.
6. Commercial Energy Use Analysis & Simulations
7. Energy Accounting
8. Energy Co-op Internship

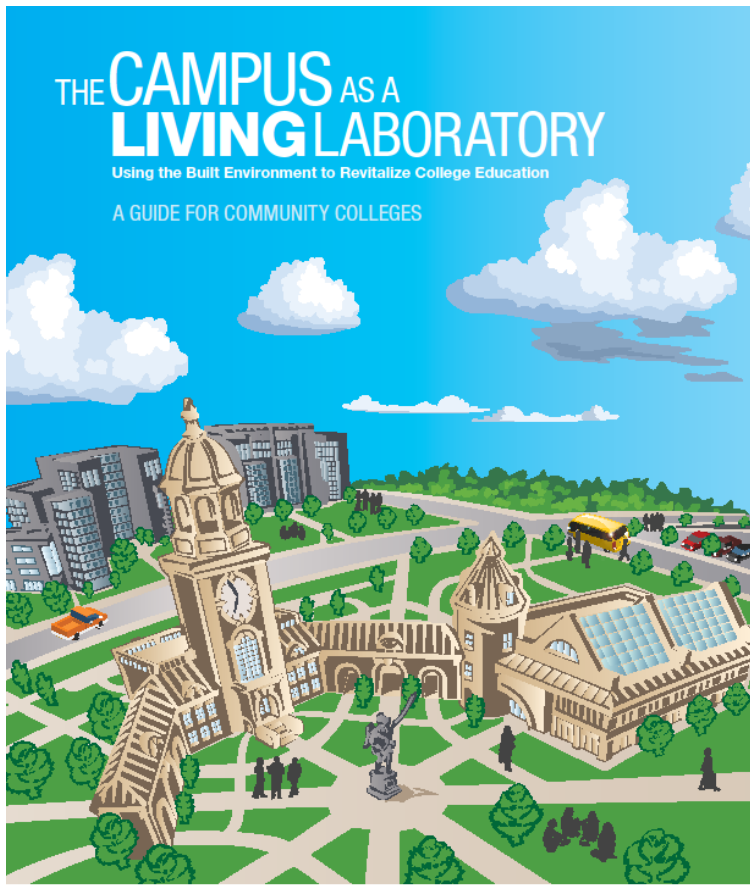
Tunxis Energy Management Degree

Courses by Semester:

Total Credits: 61

	Semester 1			Semester 2	
Course #/Subject	Title	Credits	Course # /Subject	Title	Credits
ENG101	Composition	3	ENG202	Technical Writing	3
BBG115	Business Applications Software	3	PHY110	Introductory Physics	4
MAT137	Intermediate Algebra	3	NRG131*	Building Efficiency Auditing	3
CTC106	Blueprint Reading	3	NRG122*	Commercial HVAC Systems & Analysis	3
ARC240	Environmental Systems	3	NRG123*	Energy Efficiency Methods	3
	Total Credits:	15		Total Credits:	16

	Semester 3			Semester 4	
Course #/Subject	Title	Credits	Course # /Subject	Title	Credits
CTC130	Alternative and Renewable Energy	3	CTC132	Sustainable Energy for Residences & Businesses	3
NRG124*	Energy Control Strategies	3	NRG241*	Commercial Energy Use Analysis & Simulations	3
NRG132*	Lighting Fundamentals & Applications	3	NRG242*	Energy Accounting	3
COM173	Public Speaking	3	NRG290*	Energy Co-Op Internship	3
NRG240*	Energy Investment Analysis	3	Elective	Social Science Elective	3
	Total Credits:	15		Total Credits:	15



THE KRESGE FOUNDATION



The Campus as a Living Laboratory: Using the Built Environment to Revitalize College Education

ST. CLAIR COUNTY COMMUNITY COLLEGE, PORT HURON, MI

OCTOBER 4, 2013 • 8 AM TO 4 PM

As community colleges redesign and retrofit their own campuses in greener ways, institutions can and should use these projects as experiential learning opportunities for students. These so-called "living laboratories" merge academics and campus facilities management to provide students with real-world skills and, for the institution, a path to meet its sustainability goals.

The American Association of Community Colleges' SEED Center, Siemens Industry Inc., The BEST Center, and St. Clair County Community College are hosting a workshop to help colleges build successful living laboratory initiatives. National best practice colleges and experts will address some of the biggest challenges, from breaking down internal institutional silos to addressing student safety and engaging industry.

SIEMENS



Meeting Logistics

Event
St. Clair County Community College
323 Erie St. Port Huron, MI 48061
Citizens First Michigan Technical Education Center (M-TEC)

Lodging
Port Huron DoubleTree Hilton
500 Thomas Edison Parkway
Port Huron, Michigan, 48060
www.porthuron.doubletree.com
Call 810.984.8000 or 855.610.TREE
Refer to the "AACC" block of rooms.

Closest airports: Detroit-Metro (1.5 hour drive) and Flint (1 hour)

From either airport we suggest either renting a car or taking the City Cab
airport taxi: 810.984.4100 (\$130/ride with 24-hour notice)

Park in the campus lot near the MTEC building (Building #10 in this map). Click this link:
<http://bit.ly/20wv3A6>





NONCREDIT - TO CREDIT CERTIFICATES

- [Energy Management Certificates](#)
- Courses in the Energy Management program may be taken as credit or non-credit. When stacked together, they can fulfill the requirements for one or more Certificates of Achievement. Certificates have been designed to demonstrate a commitment to training in a specific area of the energy industry. ...
- [Commercial Energy Auditing](#) (21 Cr.)
- Earn a certificate in Commercial Energy Auditing! Course covers analysis of energy use and management in commercial buildings, with an emphasis on analyzing and presenting data obtained from field experience. Students will learn how to prepare for and perform walkthrough audits in retail and office...
- [Energy Accounting](#) (6 Cr.)
- [Energy Modeling](#) (21 Cr.)
- [Energy-Efficient Lighting](#) (14 Cr.)
- [HVAC Energy Analysis](#) (18 Cr.)
- [HVAC Energy Controls](#) (21 Cr.)

CT Energy Management Program - Blended Certificates:

Energy Core Certificate	Credits
PHY110 Introductory Physics	4
BBG115 Business Applications Software	3
CTC131 Building Efficiency Auditing	3
ENG202 Technical Writing	3
ARC240 Environmental Systems	3
Certificate Total	16
HVAC Energy Analysis	
Energy Core Certificate, plus the following:	16
NRG122 Commercial HVAC Systems and Analysis	3
NRG123 Energy Efficiency Methods	3
Certificate Total	22
Commercial Energy Auditing & Modeling	
HVAC Energy Analysis, plus the following:	22
MAT137 Introductory Algebra	3
NRG241 Commercial Energy Use Analysis & Simulations	3
Certificate Total	28

HVAC Energy Controls	Credits
HVAC Energy Analysis, plus the following:	22
NRG124 Energy Control Strategies	3
Certificate Total	25
Energy Efficient Lighting	
Energy Core Certificate, plus the following:	16
MAT137 Intermediate Algebra	3
NRG132 Lighting Fundamentals & Applications	3
Certificate Total	22
Energy Accounting Certificate	
BBG115 Business Applications Software	3
NRG131 Building Efficiency Auditing	3
NRG240 Energy Investment Analysis	3
NRG242 Energy Accounting	3
Certificate Total	12



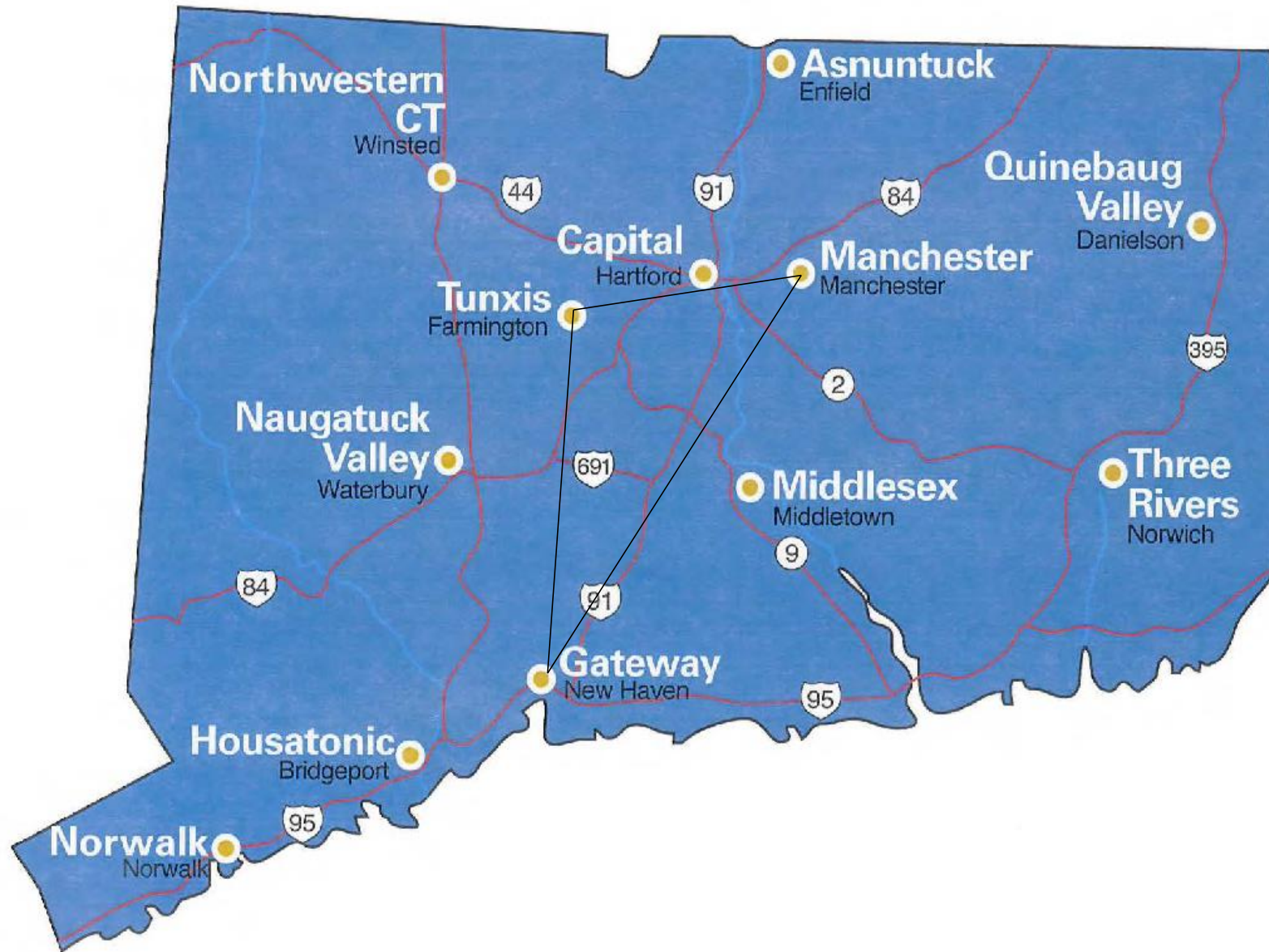
CONNECTICUT STATE
COLLEGES & UNIVERSITIES

BOARD OF REGENTS FOR HIGHER EDUCATION

College of Technology

- Existing network of STEM Programs at Community Colleges and Universities
- Two Existing AS Degrees – Engineering Science & Technology Studies
- Creating an Energy Management “Option” under Technology Studies
 - 30 Credits as Electives under this AS Degree
- Market and recruit students for the program through COT Coordinators
- Deliver Energy Management courses at 2-3 CT Community Colleges

CT COMMUNITY COLLEGES – PROGRAM ROLLOUT



GRADUATES WILL BE EMPLOYABLE AS:

- Energy Engineering Assistant
- Energy Analyst/Auditor
- Energy Program Coordinator
- Commissioning Technician
- Energy Manager Assistant
- Control System Assistant



FOR THE FOLLOWING BUSINESSES:

- UTILITY COMPANIES
- ENERGY SERVICE COMPANIES
- ENGINEERING FIRMS
- ENERGY CONSULTING FIRMS
(Lighting, HVAC, Energy Mgmt., etc.)

ENERGY MANAGEMENT PROGRAM ADVISORY BOARD

FIRST	LAST	TITLE	COMPANY
Andy	Brydges	Director, Institutional Programs	The CT Green Bank/CEFIA
Kathryn	Byorkman	Associate Energy Engineer	Siemens
Matt	Cohen	Program Manager, ESPC	DEEP
James	Daylor	Account Executive	Amersco
Diane	Duva	Office Director, Office of Energy Demand	Bureau of Energy and Technology Policy, DEEP
Tim	Forrest	Sales Engineer	Siemens
Matt	Gibbs	Director, EE Implementation	EverSource
Ian	Graham	Principal, Energy	Vidaris, Inc.
Dianne	Griffiths	Executive, VP	Steven Winter Associates
John	Matchett	Program Manager, EverSource	EverSource
Tim	Maurer	Bus. Development, NxGen	NxGen
Patrick	McDonnell	Sr. Director of C&LM	UIL Holdings Corporation
David	McIntosh	C&I, EverSource	EverSource
Matthew	Mullen	P.E., BEAP, LEED AP, CBCP	Emcor Services/President, CT Chapter AEE
Tom	Nichols	Owner	Four Elements Group (Commercial IAQ, EE, Retro-Cx)
Lisa	Schoonerman	Account Executive	Siemens
Emma	Stanley	Engineer	Vidaris, Inc.
Louise	Stix	Marketing Consultant	NCC Adjust Instructor
David	Vallerie	Strategic Building Solutions	Strategic Building Solutions
Steven	Winter	President	Steven Winter Associates

Marketing Plan:

- High Schools
- Other Sustainability Community College Programs
- College of Technology 'Technology Studies' Students
- Community College Facilities Staff
- State Agency Facilities Staff
- Municipal Employees
- Utilities, Program Vendors, Engineering Firms, Energy Co's.

https://youtu.be/9EMn-hZj_DI

Collaboration with AEE Members:

1. We Need Your Input into Curriculum
2. We Need Students
3. We Need Instructors
4. We Need Internship Opportunities

For more information:

Eric Gribin

Director, BEST Programs

Tunxis Community College

egribin@Norwalk.edu

203-857-7345

