SUNY Ulster offers several training paths for those interested in a career in the growing field of clean energy technology. The North American Board of Certified Energy Practitioners (NABCEP) has recently released an Entry-Level Solar Heating exam in addition to the existing exam for Photovoltaics Installers. They have also released exams for Solar Heating Certification, PV Technical Sales Certification and Small Wind Installer Certification. For more information on these exams please visit www.nabcep.org. For SUNY Ulster’s recommended detailed course sequence toward certification in these areas, please review pages 2 & 3 or call 845-802-7171 to speak to a Program Manager.

**Career Pathways**

<table>
<thead>
<tr>
<th>Photovoltaics</th>
<th>Solar Heating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photovoltaics Installer</td>
<td>Solar Hot Water Installer</td>
</tr>
<tr>
<td>Photovoltaics Site Assessor</td>
<td>Solar Heating Site Assessor</td>
</tr>
<tr>
<td>Photovoltaics Technical Sales</td>
<td>Solar Heating Sales</td>
</tr>
<tr>
<td>Small Wind</td>
<td></td>
</tr>
<tr>
<td>Small Wind Installer</td>
<td></td>
</tr>
<tr>
<td>Small Wind Site Assessor</td>
<td></td>
</tr>
</tbody>
</table>

**SUNY Ulster Clean Energy Technology Training Resource Center**

Funded by the NY State Energy Research & Development Authority (NYSERDA), this resource room is open to the public and located at the Business Resource Center in Kingston. It features textbooks, journals, event flyers and career information. In addition, the room displays several types of photovoltaics (PV) panels including the Solartech panel manufactured in Kingston, NY. A small wind turbine is on display as are two geothermal trainers. The room is stocked with the latest articles on different renewable energy technologies as well as news articles about local renewable companies. Come pick up a copy of the latest solar magazine or inquire about our Clean Energy Technology Training and Energy Efficiency courses. Call 845-339-2025 for hours of operation. Need to test your skill sets? Come to the Resource Center to take our math and electrical assessments and get started on a new career path! For more information call 845-802-7171.
Let The Power of SUNY help you start an educational program that is designed to lead you to a new career in the growing field of Clean Energy Technology. Call a program manager today to discuss an individual training program designed to help you move into a new career.

Introduction to Basic Mathematics

Mathematics Foundation
This class will provide a foundation of the basic math skills needed to continue with Preparing for College Mathematics. Subjects include the following: order of operations, fractions, decimals, rounding, percentages, metric units, negative numbers, introduction to algebra, exponents and scientific notation.

Tue & Thu, Jan 24 - Feb 9 • 10 am - noon
6 sessions • $39
DCB 174-02 • BRC
Instructor: Nancy Slayton
Materials needed: scientific calculator

Preparing for College Mathematics

Math for a Technical Career
This class will provide a review of basic arithmetic, elementary algebra, geometry and trigonometry, as needed to continue with Photovoltaics and Small Wind classes in the CETT program.

Materials needed: scientific calculator

Tue & Thu, Jan 24 - Feb 7 • 6 - 8 pm
5 sessions • $39
DCB 844-07 • BRC
Instructor: Jason Novak

Basic Electrical Theory I

This course gives an overview of electricity for those who are interested in taking the Small Wind Energy Workshop or Intro to Photovoltaics (PV) Systems course and have little or no electrical background. Topics covered will include: components of the atom, how electrons flow through conductors, conductivity, series and parallel circuits, tracing circuits, troubleshooting, voltage and current resistance, AC and DC voltage, single phase, three phase, and Ohm’s Law. Course includes a lab component.

Prerequisite: basic understanding of algebra and trigonometry
Materials needed: scientific calculator

Tue & Thu, Feb 16 - Mar 1 • 6 - 9 pm
5 sessions • $125
DCB 947-15 • BRC
Instructor: Jason Novak

Getting Started

Not sure where to start? Take our math assessment available online at http://goo.gl/Oo0YM and electrical assessment available online at http://goo.gl/0E8ZH and then call us at 845-802-7171 to see how you did. Scholarships are available for qualified students.
Clean Energy Technology Training

Photovoltaics (PV)

Introduction to Photovoltaics (PV) Systems - Recognized by NABCEP

Learn the basics of how to site, design, and install photovoltaic (PV) systems. This course includes sizing systems for both grid-connected and off-grid PV systems. Learn about the solar resource, the problems associated with shading and the best orientation and tilt for PV arrays. The class will cover the basic sizing and design of systems to serve a given electrical load and safety procedures for installers. Students will study the electrical code for PV systems in detail and the various mounting systems for PV arrays and how they affect roofs. Course includes a hands-on installation of a PV system. Students completing this course may sit for the NABCEP Entry Level PV Systems Exam. This course is approved for The Training of Veterans.

Prerequisite: Preparing for College Mathematics and Electrical I

Online math and electrical assessments available for placement at www.sunyulster.edu/continuing_ed/index.jsp


Optional text: Photovoltaics, $60, ISBN: 9780865715202


Materials needed: scientific calculator, volt/amp meter for AC and DC voltage, AC and DC current of at least 10 amps.

Mon - Fri, Apr 16 - 20 • 9 am - 5:30 pm
5 sessions • $599
DCB 795-13 • BRC
Approved for 40 PDHs
Instructor: John Calhoun, P.E.

NABCEP Photovoltaics (PV) Entry Level Exam Review

This course is for those who have completed the Introduction to Photovoltaics (PV) Systems and feel that they need a review before taking the NABCEP Entry Level PV Exam. The course will cover the ten skill sets listed on the NABCEP learning objectives. Your instructor is Jason Novak.

Tue & Thu, Apr 24 & 26 • 5:30 - 9:30 pm
2 sessions • $125 without PV course; $50 with payment of PV course
DCB 992-10 • BRC

NABCEP Photovoltaics Entry Level Exam

This exam is for those students who have completed the Introduction to Photovoltaics (PV) Systems course and have mastered the ten skill sets listed on the NABCEP learning objectives. You must pre-register for this exam and bring a signed copy of the NABCEP Candidate Eligibility Form to the exam.

Materials needed: non-programmable scientific calculator, No. 2 pencil
Fri, Apr 20 • 6 pm
1 session • $99
DCB 950-43 • BRC

Fri, Jun 29 • 6 pm
1 session • $99
DCB 950-44 • BRC

OSHA 10 Standard for the Construction Industry

This course is aimed at promoting workplace safety and health and is taught by an OSHA authorized trainer. OSHA course completion cards will be issued to all participants. Course includes an introduction to the OSHA Standard including OSHA Act/General Duty Clause 5(a)(1), general safety and health provisions, competent person, recordkeeping, electrical and fall protection.

Mon & Tue, Mar 12 & 13 • 9 am - 2:30 pm
2 sessions • $200
HSI 359-05 • BRC

To register call 845-339-2025
Clean Energy Technology Training

PV Technical Sales Certification
Course sequence aligns with the NABCEP PV Technical Sales Job Task Analysis.

Introduction to Photovoltaics (PV) Systems
See page 7 for details.

Residential Photovoltaics (PV) Site Assessor Training
The first step in photovoltaics (PV) installation is to determine whether your customer has a good site for a PV system. Learn how to perform a PV site assessment for a home or business. Learn how to use a Solar Pathfinder, the Solmetric SunEye™ and the ASSET™ tool. The class will cover how to recommend a system to the customer to meet their needs, identify and recommend steps for energy efficiency, identify and recommend array placement options, provide a general cost estimate, write a PV assessment, and how to use web-based performance calculators. Students will visit two sites to practice assessments. Your instructor is Jason Novak.

Sat, May 12 & 26 • 9 am - 4:30 pm (no class May 19)
2 sessions • $250 (Scholarships available to qualified students)
DCB 837-05 • BRC and sites for assessments (Transportation to sites not included)
Prerequisite: knowledge of computer skills including spreadsheets, downloading files and web navigation, knowledge of algebra and trigonometry
Suggested course prerequisite: Introduction to Photovoltaics (PV) Systems
Materials needed: calculator, clipboard, magnetic protractor, 100’ tape measure, compass, digital camera, USB flash drive

Solar Sales Training
Attend this workshop to learn the basics of selling solar energy systems and the reasons why people buy these systems. Learn how to talk to customers on the phone, how to determine customers’ needs and how to close the deal. Learn how to develop a proposal and set goals. During class you will develop proposals for various sized solar energy systems, put together presentations for prospective customers and look at various marketing techniques. Guest speakers will include marketing and internet experts, a solar distributor representative and a million dollar solar seller. Course aligns with the NABCEP PV Technical Sales Job Task Analysis. Your instructor is Francine Notte, a NABCEP certified installer and ISPQ certified instructor.

Wed & Thu, May 2 & 3 • 9 am - 4:30 pm
2 sessions • $350
DCB 957-07 • BRC
Prerequisite: Photovoltaics
Optional materials: laptop, digital camera, USB flash drive

OSHA 10 Standard for the Construction Industry
This course is aimed at promoting workplace safety and health and is taught by an OSHA authorized trainer. OSHA course completion cards will be issued to all participants. Course includes an introduction to the OSHA Standard including OSHA Act/General Duty Clause 5(a)(1), general safety and health provisions, competent person, recordkeeping, electrical and fall protection. This course is required for NABCEP PV Technical Sales Certification.

Mon & Tue, Mar 12 & 13 • 9 am - 2:30 pm
2 sessions • $200
HSI 359-05 • BRC

NEW! NABCEP PV Technical Sales Exam Review
This course is a preparation class for those getting ready to take the NABCEP PV Technical Sales certification exam. Your instructor is Francine Notte, a NABCEP certified installer and ISPQ certified instructor.

Wed, Jun 13 • 9 am - 5 pm
1 session • $250
DCB 221-01 • BRC

www.sunyulster.edu/ce
Residential PV Site Assessor Certificate

Students interested in receiving a certificate in Residential PV Site Assessor must take Introduction to Photovoltaics (PV) Systems, Residential Photovoltaics (PV) Site Assessor and Advanced Residential Photovoltaics and pass the certificate exam.

Introduction to Photovoltaics (PV) Systems - Recognized by NABCEP
See page 7 for complete course description.
Prerequisite: Preparing for College Mathematics, Electrical I
Online math and electrical assessments available for placement at www.sunyulster.edu/continuing_ed/index.jsp
Optional text: Photovoltaics, $60, ISBN: 9780886571520
Materials needed: scientific calculator, volt/amp meter for AC and DC voltage, AC and DC current of at least 10 amps.
Mon - Fri, Apr 16 - 20 • 9 am - 5:30 pm
5 sessions • $599
DCB 795-13 • BRC
Approved for 40 PDHs

Residential Photovoltaics (PV) Site Assessor
The first step in photovoltaics (PV) installation is to determine whether your customer has a good site for a PV system. Learn how to perform a PV site assessment for a home or business. Learn how to use a Solar Pathfinder, the Solmetric SunEye™ and the ASSET™ tool. The class will cover how to recommend a system to the customer to meet their needs, identify and recommend steps for energy efficiency, identify and recommend array placement options, provide a general cost estimate, write a PV assessment, and how to use web-based performance calculators. Students will visit two sites to practice assessments. Your instructor is Jason Novak.
Sat, May 12 & 26 • 9 am - 4:30 pm (no class May 19)
2 sessions • $250 (Scholarships available to qualified students)
DCB 837-05 • BRC and sites for assessments • transportation to sites not included
Prerequisite: knowledge of computer skills including spreadsheets, downloading files and web navigation, knowledge of algebra and trigonometry
Suggested course prerequisite: Introduction to Photovoltaics (PV) Systems
Materials needed: calculator, clip board, magnetic protractor, 100' tape measure, compass, digital camera, USB flash drive

NEW! Advanced Residential Photovoltaics (PV) Site Assessor
Join Jason Novak as he guides you through the MREA Residential PV Site Assessor Certificate requirements. This course requires each student to independently complete two practice assessments outside of classroom time. Assessments will be uploaded to the MREA site for approval by a technology mentor before sitting for the certificate exam. Students will need to work independently to gather information for their reports including, but not limited to, utility bills and type of utility service. Certificate requires passing the MREA Residential PV Site Assessor Certificate Exam. Class size is limited to 4 students.
Prerequisite: strong written and verbal skills, college-level mathematics, time management, critical thinking and computer skills, Introduction to Photovoltaics (PV) Systems and Residential Photovoltaics (PV) Site Assessor Training and recommendation from instructor.
Sat, Jun 9 & 23 • 9 am - noon
2 sessions plus exam • $599 (scholarships available to qualified students)
DCB 175-03 • BRC
No class June 16

To register call 845-339-2025
Clean Energy Technology Training

Advanced Photovoltaics

For students who have taken the Introduction to Photovoltaics (PV) Systems course and are looking to enhance their foundation of PV or for those looking for NABCEP Continuing Education credit, SUNY Ulster offers an array of courses.

NEW! Photovoltaics (PV) Introduction to Off-Grid Systems
Photovoltaics systems that employ batteries require significant design considerations. Whether using batteries to backup your utility grid or having them as the basis of a stand-alone off-grid system, choosing the correct battery and sizing it correctly is challenging. This three-day workshop provides an introduction to off-grid solar. Students will join instructor John Calhoun, P.E. as he covers system design, performance modeling, and safe installation, operation and maintenance. Class includes the assembly and operation of a small off-grid system.

Prerequisite: Introduction to Photovoltaics (PV) Systems

Wed - Fri, Mar 14 - 16 • 9 am - 4:30 pm
3 sessions • $399
DCB 031-03 • BRC

NEW! Photovoltaics (PV) Troubleshooting and Maintenance
This three-day course is designed for those who are directly responsible for hands-on installation, troubleshooting, maintenance and operation of solar electric systems. This course will cover both grid and off-grid systems. Your instructor is John Calhoun, P.E.

Prerequisite: Introduction to Photovoltaics (PV) Systems

Wed - Fri, Mar 21 - 23 • 9 am - 4:30 pm
3 sessions • $399
DCB 077-02 • BRC

Advanced Photovoltaics (PV) Systems
Course topics will include the future of solar energy systems, review of formulas needed to size PV, how to design a PV system, PV mounting systems, calculating wind load, weight load on roofs, mounting, safety on roofs, calculating system efficiency, wire sizing, performance monitoring, troubleshooting and complying with NYSERDA forms and regulations. This course is approved for The Training of Veterans. Prerequisite: Introduction to Photovoltaics (PV) Systems

Materials needed: scientific calculator

Approved for 14 PDHs
Mon & Tue, Apr 30 - May 1 • 9 am - 5 pm
2 sessions • $350
DCB 956-06 • BRC

Conquering the Forms and Regulations of Solar Incentives
This workshop will cover NYSERDA incentive paperwork, including allowable costs for reimbursement and rebate and how to use PowerClerk® to check application status (NYSERDA). Learn how to apply for building permits, including filling out permit applications, putting together complete packages for towns, getting stamped drawings, and other requirements by local building inspectors. The class will discuss how to deal with the utilities for interconnection, including contracts, drawings and system information required by utilities and navigating utility departments. Your instructor is Lori Johnson of ETM Solar.

Prerequisite: Introduction to Photovoltaics (PV) Systems

Approved for 7 PDHs
Fri, May 4 • 9 am - 4:30 pm
1 session • $250
DCB 958-08 • BRC

NEW! Photovoltaics Hands-on Lab Workshop
This workshop consists of a full day of hands-on instruction on pipe bending, inverter installation, roof layout and conduit installation. Learn the techniques that an experienced installer has spent the past years fine tuning. This course is led by Francine Notte, a NABCEP certified installer and ISPQ certified instructor.

Mon, Apr 23 • 9 am - 5 pm
1 session • $250
DCB 227-01 • BRC

www.sunyulster.edu/ce
Clean Energy Technology Training

NEW! Data Acquisition Systems (DAS)
Data Acquisition Systems are one of the areas which installers typically understand the least. This course examines all of the possible DAS of the most popular inverters including larger ones such as Satcon and Solectria. This course will continue on to cover other DAS not specifically designed for a manufacturer’s inverter such as Fat Spaniel. Your instructor is Francine Notte, a NABCEP certified installer and ISPQ certified instructor.

Tue, Apr 24 • 9 am - 5 pm
1 session • $250
DCB 229-01 • BRC

NEW! How to Run a Small Photovoltaics (PV) Business
Interested in running your own Photovoltaics business? Join Francine Notte as she discusses the high spots and points out the pitfalls of small business ownership. Course will cover costs, policy making relating to employees, insurance, worker’s compensation and more!

Wed & Thu, Apr 25 & 26 • 9 am - 5 pm
2 sessions • $350
DCB 230-01 • BRC

NEW! NABCEP Photovoltaics (PV) Certification Exam Review
This course is a preparation class for those getting ready to take the NABCEP Photovoltaics (PV) Installer Certification exam. Your instructor is Francine Notte, a NABCEP certified installer and ISPQ certified instructor.


Mon, Mar 5 • 9 am - 5 pm
1 session • $250
DCB 165-02 • BRC

NEW! Clean Energy Technology Internships
This course provides students with work experience in a Clean Energy Technology field. Students will meet with the internship coordinator who will cover expectations for the internship program and assess the students’ readiness. Students will be coached in the interview process, professional attitude and personal presentation. For more information contact SUNY Ulster at 845-339-2025.

Prerequisite: admission interview, minimum of 40 hours of Clean Energy Technology Training with SUNY Ulster

DCB 241 • $299

NEW! Renewable Energy Systems for Professionals
Join our team of experts as they present an overview the economics of photovoltaics, solar thermal, wind and geothermal systems. Understand how systems are sited and sized and review case studies. Understand the basics of these new technologies and learn what types of systems are available. Learn what to look for when purchasing systems. This course is designed as an overview of the renewable energy systems and not intended for those looking to install systems themselves. The course is ideal for engineers and architects who need to understand how each system works, the benefits of the systems and the incentives. Your instructors are Francine Notte, Past Vice-President of ETM Solar Works, Ron Kamen, Chairman and Director of EarthKind Energy, Inc. and Bill Giglio, Principal with Sun Wind Solutions.

Thu, Jun 14 • 9 am - 5:30 pm
1 session • $250
DCB 231-01 • BRC

To register call 845-339-2025
Clean Energy Technology Training

NEW! Manufacturing Technician and Installer Series

This series was created to train students across a broad range of photovoltaic jobs currently in the Hudson Valley. Students will begin the series with foundation classes of shop math, blueprint reading and workplace communication skills. They will then continue on to learn how photovoltaic panels are manufactured and then progress into a basic course of how to site, design and install these panels into systems. DCB 239-01 • BRC and Solartech Renewables, Kingston • $1,995

Introduction to Solar Panel Manufacturing

SUNY Ulster and Solartech Renewables have partnered to bring you this hands-on state-of-the-art manufacturing course. The course consists of three components: Production Fundamentals (defining solar cells and safety in the workplace); Understanding Manufacturing Stations; and Hands-On Training with Production Equipment. At the end of the course, students will be tested on their knowledge of the manufacturing stations.

Prerequisite: basic computer skills and assessment interview

Mon - Thu, Mar 26 - 29 • 5 - 9 pm
Fri, Mar 30 • noon - 4 or 5 - 9 pm (exam)
5 sessions

NEW! Skill Sets for Manufacturing Technicians

This course consists of three components: shop math, blueprint reading and workplace communication. These skills are necessary for a successful career in the manufacturing technician field.

Tue - Thu, Apr 3 - 12 • 9 am - 5:30 pm
6 sessions

Introduction to Photovoltaics (PV) Systems

Learn the basics of how to site, design and install photovoltaic (PV) systems. This course includes sizing systems for both grid-connected and off-grid PV systems. Learn about the solar resource, the problems associated with shading and the best orientation and tilt for PV arrays. The class will cover the basic sizing and design of systems to serve a given electrical load and safety procedures for installers. Students will study the electrical code for PV systems in detail and the various mounting systems for PV arrays and how they affect roofs. Course includes a hands-on installation of a PV system. Students completing this course may sit for the NABCEP Entry Level Certificate of Knowledge of PV Systems Exam. This course is approved for The Training of Veterans.

Prerequisite: Preparing for College Mathematics and Electrical I

Online math and electrical assessments available for placement at www.sunyulster.edu/continuing_ed/index.jsp

Optional text: Photovoltaics, $60, ISBN: 9780865715202

Materials needed: scientific calculator, volt/amp meter for AC and DC voltage, AC and DC current of at least 10 amps.

Mon - Fri, Apr 16 - 20 • 9 am - 5:30 pm
5 sessions

NABCEP Photovoltaics Entry Level Exam

This exam is for those students who have completed the Introduction to Photovoltaics (PV) Systems course and have mastered the ten skill sets listed on the NABCEP learning objectives. You must preregister for this exam and bring a signed copy of the NABCEP Candidate Eligibility Form to the exam.

Materials needed: non-programmable scientific calculator, No. 2 pencil

Fri, Apr 20 • 6 pm
1 session
Clean Energy Technology Training

Solar Thermal

Solar Hot Water Installation and Design
Solar power isn’t just for electricity; solar thermal systems (or Solar Hot Water) are less expensive, more efficient than solar photovoltaics and still qualify for lucrative federal and state tax credits. This course covers equipment such as collectors, tanks, pumps, piping and controllers and reviews major system designs such as “closed loop pressurized” and “drainback” as well as solar pool heating designs. This course is an 18-hour hands-on training for trades people, engineers, architects, HVAC practitioners and other professionals. This course is designed to meet training requirements for NABCEP installer exams. This course is presented by Peter Skinner, P.E., President of E2G and Betsy Ferris Wynman of SunDog Solar.

Sat, Sun, Mon, March 17 - 19
Sat, 1 - 6 pm; Sun & Mon, 10:30 am - 5:30 pm
3 sessions · $599 (includes text)
DCB 933-08 · BRC
Note: A $60 non-refundable textbook fee is included in the above price.

NEW! Domestic Solar Hot Water Heating Hands-on Lab
This class is for students who want an introductory, hands-on experience in solar thermal systems. The class will cover how these systems work, basic design elements and components of solar thermal installations and how to troubleshoot systems. This class is ideal for those with little or no installation experience. This course will feature presentations of fundamental theory and installation best practices. The instructors will focus most attention on the two solar loop systems, the drainback and the closed loop pressurized. The instructors will also make sure all students understand how to connect tanks and integrate the SHW system to a variety of existing domestic hot water systems installers encounter in New York. Together, the students and instructors will assemble two systems - a manufacturer kit based closed loop antifreeze pressurized system and a component based drainback system. The course will help prepare you for the NABCEP Solar Hot Water exam. This course is presented by Peter Skinner, P.E., President of E2G.

Wed, Apr 11 • 9 am - 6 pm
1 session · $250 (Scholarships available to qualified students)
DCB 222-01 · BRC
Prerequisite: Basic Mathematics, Solar Hot Water Installation and Design
Materials needed: scientific calculator, volt meter, hard hat, safety glasses
Optional materials: plumbing tool kit, laptop computer

NEW! NABCEP Solar Heating Entry Level Exam Review
This course is for those who have completed the Solar Hot Water Installation and Design course and feel that they need a review before taking the NABCEP Solar Heating Entry Level Exam. The course will cover the skill sets listed on the NABCEP learning objectives. Your instructor is Peter Skinner, P.E., President of E2G.

Thu, Apr 12 • 9 am - 5:30 pm
1 session · $125 without Solar Thermal course; $50 with payment of Solar Thermal course
DCB 223-01 · BRC

NEW! NABCEP Solar Heating Entry Level Exam
This exam is for those students who have completed the Solar Hot Water Installation and Design course and have mastered the skill sets listed on the NABCEP learning objectives. You must preregister for this exam.
Materials needed: non-programmable scientific calculator, No. 2 pencil

Fri, Apr 13 • 6 pm
1 session · $99
DCB 224-01 · BRC

To register call 845-339-2025
Clean Energy Technology Training

New! Advanced Solar Hot Water Installation and Design
Today’s solar systems are reliable and efficient but must be customized for each client’s unique hot water system design. Knowledge of advanced topics in solar thermal will allow you to successfully design and install larger and more complicated systems with better financial outcomes for your business. This course will cover collector performance and reliability, solar loop designs, heat exchange analysis, hydronic heating and cooling system equipment and design, heating and cooling load analysis, site safety considerations, permitting and building and health code considerations. The course will delve into topics including controllers and relays for enhanced system operation, web-based monitoring and troubleshooting, commercial and large residential heating load integration options, geothermal system combinations, large pool system equipment and designs, heat storage strategies, solar supported space cooling, wind and snow loading calculations and difficult roof attachment solutions.
Fri & Sat, May 18 & 19 • 10 am - 5:30 pm
2 sessions and webinar • $650 (includes textbook)
DCB 176-02 • BRC

New! NABCEP Solar Heating Certification Exam Review
This course is a preparation class for those getting ready to take the NABCEP Solar Heating Certification exam. Your instructor is Peter Skinner, P.E., President of E2G.
Tue, Mar 20 • 9 am - 5 pm
1 session • $250
DCB 232-01 • BRC

New! Residential Solar Hot Water Site Assessor
A solar site assessment is the solar analysis of a property to determine the feasibility of using solar energy collecting technology on the site, and it is the first step in the process to installing a solar energy system. It results in a written report containing detail of the entire assessment. A solar site assessment is also the first interface with a property owner who is also a potential client, and therefore should be taken as a chance to be an ambassador for the solar industry, providing information on various solar energy options as well as the importance of energy efficiency.
The course will cover analysis of the solar resource (how much sun energy is available) using the Solar Pathfinder, interface with the property owner, energy efficiency recommendations, collector mounting options, assessment of hot water load, pipe run options, options for integration with the existing mechanical system, solar energy system sizing recommendations, estimates of cost and production of proposed solar energy system using Solar Pathfinder Assistant shading software and RETScreen modeling and analysis software, emissions analysis, economic analysis, and review of potential financial credits, rebates, and incentives. This course could benefit a wide array of trades, including building and home inspectors, HVAC mechanics and plumbers, architects and engineers, general contractors, and other building and property professionals. Your instructor is Mark Graham, President of Solar Site Assessors, LLC and a Certified Solar Hot Water Site Assessor.
Sat, Apr 14 • 9 am - 5:30 pm
1 session • $250
DCB 233-01 • BRC
Prerequisite: Solar Hot Water Installation and Design, knowledge of computer skills including spreadsheets, downloading files and web navigation, knowledge of algebra and trigonometry, clear communication and writing skills
Materials needed: calculator, USB flash drive, notepad, bag lunch
Optional materials: laptop (Excel and RETScreen)

New! Solar Heating Sales
The solar industry is filled with engineers and scientists, but the industry also needs sales people. Attend this workshop to learn the basics of selling solar thermal energy systems and the reasons why people buy these systems. Learn how to talk to customers on the phone, how to sort customers, how to ask for the deal and listen to the customer. Learn how to develop a proposal and set goals. During class you will develop proposals for various sized solar thermal energy systems, put together presentations for prospective customers and look at various marketing techniques.Your instructor is Francine Notte, a NABCEP certified installer and ISPQ certified instructor.
Fall 2012
Solar Hot Water Installation and Design
Solar power isn’t just for electricity; solar thermal systems (or Solar Hot Water) are less expensive, more efficient than solar photovoltaics and qualify for lucrative federal and state tax credits. This course covers equipment such as collectors, tanks, pumps, piping and controllers and reviews major system designs such as “closed loop pressurized” and “drainback” as well as solar pool heating designs. This course is an 18-hour hands-on training for trades people, engineers, architects, HVAC practitioners and other professionals. This course is designed to meet training requirements for NABCEP installer exams. This course is presented by Peter Skinner, P.E., President of E2G and Betsy Ferris Wynman of SunDog Solar.
Sat, Sun, Mon, March 17 - 19
Sat, 1 - 6 pm; Sun & Mon, 10:30 am - 5:30 pm
3 sessions • $599
DCB 933-08 • BRC
Note: A $60 non-refundable textbook fee is included in the above price.

NEW! Residential Solar Heating Site Assessor
A solar site assessment is the solar analysis of a property to determine the feasibility of using solar energy collecting technology on the site, and it is the first step in the process to installing a solar energy system. It results in a written report containing detail of the entire assessment. A solar site assessment is also the first interface with a property owner who is also a potential client, and therefore should be taken as a chance to be an ambassador for the solar industry, providing information on various solar energy options as well as the importance of energy efficiency. The course will cover the analysis of the solar resource (how much sun energy is available) using the Solar Pathfinder, interface with the property owner, energy efficiency recommendations, collector mounting options, assessment of hot water load, pipe run options, options for integration with the existing mechanical system, solar energy system sizing recommendations, estimates of cost and production of proposed solar energy system using Solar Pathfinder Assistant shading software and RETScreen modeling and analysis software, emissions analysis, economic analysis, and review of potential financial credits, rebates, and incentives. This course could benefit a wide array of trades, including building and home inspectors, HVAC mechanics and plumbers, architects and engineers, general contractors, and other building and property professionals. Your instructor is Mark Graham, President of Solar Site Assessors, LLC.
Sat, Apr 14 • 9 am - 5:30 pm
1 session • $250 (Scholarships available to qualified students)
DCB 233-01 • BRC
Prerequisite: Solar Hot Water Installation and Design, knowledge of computer skills including spreadsheets, downloading files and web navigation, knowledge of algebra and trigonometry, clear communication and writing skills
Materials needed: calculator, USB flash drive, notepad, bag lunch
Optional materials: laptop (Excel and RETScreen)

To register call 845-339-2025
Clean Energy Technology Training

**Wind Site Assessor Training**

**Small Wind Energy Workshop**
This five-day course will lead participants through the necessary steps required to site and install a small wind turbine (up to 50 kW). The course will cover all the steps for a successful project including timelines, initial planning stages, site consideration, wind resource assessments and energy production estimates, tower considerations, zoning requirements, interconnection, insurance, permitting, equipment assembly, maintenance and much more. This course is designed around the NABCEP Objectives and Task Analysis for a Small Wind Energy System Installer. Course is presented by Roy Butler of Four Winds.

Required text: *Wind Power*, $50, ISBN 9781931498142, order online at efollett.com


Mon - Fri, May 7-11 • 9 am - 5 pm  
1 session • $89  Sr. discount applies

5 sessions • $599  
DCB 900-09 • BRC and SRC  
DCB 894-09 • BRC

**Residential Wind Site Assessor Training**
Join Roy Butler of Four Winds as he leads the class through the background information required to perform a small wind site assessment. Students will learn to perform a basic analysis of a residential client’s energy needs, evaluate a site’s wind energy potential and determine wind speed at the proposed tower height, estimate energy production for the proposed system based on the wind resource, provide information and guidance on appropriate siting for a residential wind system and use this information to generate a site assessment report. Also included in the report will be a list of project next steps, including permitting, utility interconnection, insurance, potential dealers or installers, and funding. This course is designed around the NABCEP Small Wind Site Assessor Job Task Analysis. Course price includes a copy of *7th Wind Performance Calculator*.

Prerequisite: Small Wind Energy Workshop

Required text: *Wind Power*, $50, ISBN 9781931498142, order online at efollett.com


Mon - Fri, May 21 - 25 • 9 am - 5 pm  
5 sessions • $499  
DCB 959-05 • BRC

**Pre-Geothermal: Foundations of Refrigeration and Air Conditioning**
This course will introduce the student to the basic theory and operation of refrigeration systems, heat transfer, installation techniques and practices. At the conclusion of the course, students should be able to correctly describe the components and operation of geothermal heat pumps. The course includes a lab component. Your instructor is John Trosie.

Tue & Thu, Mar 6 & 8 • 5 - 9 pm  
2 sessions • $20  
VOC024 • Dutchess County Community College, to register call 845-431-8907

**IGSHPA Accredited Geothermal Installation/NATE Certification**
This three-day comprehensive course focuses on the installation of geothermal heating and cooling systems and combines classroom and hands-on learning. A step-by-step example of a local closed loop system design for residential applications is covered as well as geothermal marketing and sales for small and large companies. Accreditation: Upon successful completion of the workshop and passing the International Ground Source Heat Pump Association (IGSHPA) open-book exam, you will be issued an IGSHPA accreditation as an installer of GSPH systems and will receive an installer’s card and a certificate. Course price includes seven manuals and guide books. This course is approved for The Training of Veterans.

Wed - Fri, Mar 28 - 30 • 8 am - 5 pm  
3 sessions • $1,299  Register online at www.heatspring.com  
DCB 943-08 • BRC

Approved for 24 AIA CEUs
Manufacturing companies moving into the Hudson Valley are looking for skilled workers. SUNY Ulster is pleased to offer these noncredit & credit programs and courses for students interested in pursuing a manufacturing career.

**NEW! Lean Overview and Simulation**
Participants will be exposed to a broad list of Lean tools and definitions. They will also compare some attributes of traditional/batch manufacturing to Lean manufacturing. Participants will perform a simulation exercise to demonstrate how the Lean tools and concepts can have an impact on their operations. On an overview basis, the following tools will be defined and discussed: Value Stream Mapping, 5-S and Visual Controls, Kaizen and Culture Change. Your instructor is Vincent Buonomo of the Center for Integrated Manufacturing Studies (CIMS), RIT.

Tue, May 1 • 8:30 am - 4:30 pm
1 session • $299
DCB 234-01 • BRC

**NEW! Manufacturing Technician Series**

**Introduction to Solar Panel Manufacturing**
SUNY Ulster and Solartech Renewables have partnered to bring you this hands-on state-of-the-art manufacturing course. The course consists of three components: Production Fundamentals (defining solar cells and safety in the workplace); Understanding Manufacturing Stations; and Hands-On Training with Production Equipment. At the end of the course students will be tested on their knowledge of the manufacturing stations. **Prerequisite:** basic computer skills and interview

Mon - Thu, Mar 26 - 29 • 5 - 9 pm
Fri, Mar 30 • noon - 4 or 5 - 9 pm (exam)
5 sessions • $299
DCB 179-02 • Solartech Renewables, Kingston

**CNC Operator Certificate and Foundations of Solar Manufacturing Processes**
The Hudson Valley is growing in the demand for photovoltaic manufacturing and installation technicians. This course will allow students to have hands on experience with one of the most high tech solar assembly machines in the industry: the Spi-Assembler 6000. Students will learn to program, run, maintain and trouble shoot the Spi-Assembler 6000. At the conclusion of the course the student will receive a certificate of proficient knowledge and understanding of the Spi-Assembler 6000 and a basic knowledge of solar cell technology, soldering theories and photovoltaic solar panel manufacturing. **Prerequisite:** basic computer skills

Mon - Fri, Apr 2 - 20 • 10 am - 5 pm
15 sessions • $1,499
DCB 180-02 • Solartech Renewables, Kingston

**Manufacturing Technology Certificate Credit Program**

<table>
<thead>
<tr>
<th>Course Code</th>
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<tr>
<td>IND 130</td>
<td>Drafting Fundamentals</td>
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<tr>
<td>MFG 101</td>
<td>Manufacturing Elective</td>
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<tr>
<td>CSC 101</td>
<td>Fundamentals of Computers</td>
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<tr>
<td>ENG 101</td>
<td>College English I</td>
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<td>LIB 111</td>
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<tr>
<td>MAT 100</td>
<td>Intermediate Algebra</td>
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<td>IND 135</td>
<td>Advanced Drafting</td>
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<td>Computer Assisted Drafting I</td>
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<td>MFG 201</td>
<td>Manufacturing Elective</td>
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<tr>
<td>ENG 227</td>
<td>Technical Writing</td>
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<tr>
<td>MAT 115</td>
<td>College Algebra and Trigonometry</td>
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</table>
Building Analyst

Training to perform comprehensive, “whole-house” assessments, identify problems at the root cause and prescribe and prioritize solutions based on building science

Prerequisites: Basic building science background is strongly recommended

BPI training programs will provide you with an advanced training in building science, whole-home assessments and energy efficiency work scoping, and will prepare you for the BPI certification written and field exams. Adding this comprehensive set of skills and services to your business can increase the quality and scope of work performed, and can lead to greater customer satisfaction. Training focuses on “house as a system” approach to:

- Health and safety; air quality & moisture control
- Envelope integrity; air sealing & insulation
- Thermal comfort; optimizing HVAC systems
- Energy efficiency and reduction

Basics of Building Science

If you are new to building science and want to develop a foundation of skills and knowledge to prepare you for Building Analyst, this course is for you. This online course teaches the basics of building science and how interacting relationships affect the performance of a home. Structured 5 modules over 5 weeks; 15 hours of online participation required. This is NOT a BPI course.

Feb 6 - Mar 9
DCB 170 - 03 • $300

Building Analyst

Training to perform comprehensive, “whole-house” assessments, identify problems at the root cause and prescribe and prioritize solutions based on building science

Prerequisites: Basic building science background is strongly recommended

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Tue - Fri, Jan 17 - 20 • 9 am - 4 pm
Tue & Wed, Jan 24 - 25 • 9 am - 4 pm
6 sessions • $1,045
DCB 842-21 • BRC, Kingston and field
Review and Written Exam:
Thu, Jan 26 • 9 am - 1 pm
1 session • $250
DCB 025-21 • BRC, Kingston

Tue & Thu, Jan 24 - Feb 16
Jan 24 - Feb 9 • 6 - 9:15 pm
Feb 14 & 16 • 8:30 am - 4 pm
8 sessions • $1,045
DCB 842-22 • Sullivan Community College and field
Review and Written Exam:
Tue, Feb 21 • 9 am - 1 pm
1 session • $250
DCB 025-22 • Sullivan Community College

Tue - Thu, Mar 20 - 22 • 9 am - 4 pm
Mon - Wed, Mar 26 - 28
6 sessions • $1,045
DCB 842-23 • Dutchess Community College and field
Review and Written Exam:
Thu, Mar 29 • 9 am - 1 pm
1 session • $250
DCB 025-23 • Dutchess Community College

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Tue - Fri, Apr 17 - 20 • 9 am - 4 pm
Tue & Wed, Apr 24 - 25 • 9 am - 4 pm
6 sessions • $1,045
DCB 842-24 • Rockland Community College and field
Review and Written Exam:
Thu, Apr 26 • 9 am - 1 pm
1 session • $250
DCB 025-24 • Rockland Community College and field

Tue & Thu, May 22 - Jun 14 • 6 - 9:15 pm
Sat & Sun, Jun 16 & 17 • 9 am - 4 pm
10 sessions • $1,045
DCB 842-25 • BRC, Kingston and field
Review and Written Exam:
Tue, Jun 19 • 9 am - 2 pm
1 session • $250
DCB 025-25 • BRC, Kingston

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Tue - Thu, Jun 19 - 21 • 9 am - 4 pm
Mon - Wed, Jun 25 - 27 • 9 am - 4 pm
6 sessions • $1,045
DCB 842-26 • Dutchess Community College and field
Review and Written Exam:
Thu, Jun 28 • 9 am - 1 pm
1 session • $250
DCB 025-26 • Dutchess Community College
Envelope Professional
This course is the training to quantify “whole-home” performance and prescribe improvements to help tighten the building envelope (shell), stop uncontrolled air leakage, install needed insulation, and optimize comfort, durability and HVAC performance.

**Prerequisites:** Building Analyst training or BPI Building Analyst Certification

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<thead>
<tr>
<th>Dates</th>
<th>Times</th>
<th>Sessions</th>
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<tr>
<td>Tue - Thu, Feb 28 - Mar 1</td>
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<td>Tue &amp; Wed, Mar 6 - 7</td>
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DCB 843-12 • BRC, Kingston and field
Review and Written Exam:
Fri, Mar 9 • 9 am - 1 pm
1 session • $250
DCB 026-12 • BRC, Kingston

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<th>Sessions</th>
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<td>Tue - Thu, May 8 - 10</td>
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DCB 843-13 • Dutchess Community College and field
Review and Written Exam:
Thu, May 17 • 9 am - 1 pm
1 session • $250
DCB 026-13 • BRC, Dutchess Community College

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<th>Dates</th>
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DCB 843-14 • BRC, Kingston and field
Review and Written Exam:
Thu, Jul 26 • 9 am - 1 pm
1 session • $250
DCB 026-14 • BRC, Kingston

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Heating Professional
Training to optimize the performance of heating equipment to help save energy and ensure occupant comfort, health and safety.

**Prerequisites:** Building Analyst training or BPI Building Analyst Certification

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<tbody>
<tr>
<td>Tue - Thu, Apr 24 - 26</td>
<td>8 am - 4 pm</td>
<td>5</td>
<td>$1,250</td>
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<tr>
<td>Tue &amp; Wed, May 1 - 2</td>
<td>8 am - 4 pm</td>
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<td>$250</td>
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DCB 036-05 • BRC, Kingston and field
Review and Written Exam:
Thu, May 3 • 9 am - 1 pm
1 session • $250
DCB 635-05 • BRC, Kingston

Field exams are by appointment only. Please call 845-339-2025 to schedule. Field exam fee is $500. Students are required to provide their own field testing house and to make arrangements for the equipment.
Green Building for LEED Professionals

US Green Building Council’s Leadership in Energy Environmental Design (LEED) professional accreditations are designed for those who want more than a basic understanding of sustainability and green building concepts. This Green Building mini-series is designed for owners, designers and builders. All programs will include discussion of relevant application to LEED process and point system and can be used for GCBI credit for LEED professionals. These courses are intended for those who wish to become LEED certified, those who already are LEED certified, for architects and those who engage in community planning.

NEW! LEED Green Associate Exam Prep
This course provides qualification training to sit for the U.S. Green Building Council LEED GA Exam. Passing the Green Associate exam will allow you to market your knowledge of the preeminent standards in the green building industry, and it is the first step in becoming a LEED Professional. This course will review the critical points you need to know about green building and will include group activities using review and practice questions that use the same format as those you will find on the actual exam. Your instructor is Clifford A. Cooper, MS, CIH, LEED AP, ASHRAE HBDP, CSBA.

Fri & Sat, Feb 10 & 11 • 9 am - 5 pm
2 sessions • $299
DCB 196-02 • BRC
Required text: Green Associate Study Guide with Green Building & LEED Core Concepts Guide
$85, available at www.usgbc.org

NEW! LEED for Homes
The two-day LEED for Homes Training Course is designed to prepare qualified participants with an introduction to the LEED for Homes rating system. The course addresses the prerequisites and key credits within the rating system and identifies the roles and responsibilities of stakeholders in a LEED for Homes project. The course is designed to prepare building design and trades professionals for the requirements for LEED building certification, and will introduce all of the credits and credit categories, as well as the LEED verification process. This workshop is intended for anyone seeking an understanding of the LEED for Homes rating system, whether they are pursuing the USGBC/GBCI LEED AP Homes credential or simply want a better understanding of sustainable building practice. The course is particularly suited for those who may be stakeholders in LEED for Homes projects, including residential building owners and managers, builders, architects, designers, trades contractors, engineers, code enforcement officers and decision makers. This course is eligible for the GBCI credential maintenance program and meets GBCI eligibility requirements for the LEED Green Associate examination. Your instructor is Clifford A. Cooper, LEED Homes AP.

Fri & Sat, Mar 9 & 10 • Fri, 9 am - 5 pm; Sat, 9 am - 3 pm
2 sessions • $299
DCB 198-02 • BRC

NEW! LEED for Existing Buildings: Operations and Maintenance (LEED EBOM)
The LEED for Existing Buildings Rating System helps building owners and operators measure operations, improvements and maintenance on a consistent scale, with the goal of maximizing operational efficiency while minimizing environmental impacts. LEED for Existing Buildings addresses whole-building cleaning and maintenance issues (including chemical use), recycling programs, exterior maintenance programs, and systems upgrades. It can be applied both to existing buildings seeking LEED certification for the first time and to projects previously certified under LEED for New Construction, Schools, or Core & Shell. This course is eligible for the GBCI credential maintenance program and meets GBCI eligibility requirements for the LEED Green Associate examination. Your instructor is Clifford A. Cooper, LEED Homes AP.

Fri & Sat, Apr 13 & 14 • 9 am - 5 pm
2 sessions • $299
DCB 238-01 • BRC

20

www.sunyulster.edu/ce
NEW! Healthy Building
The first and most important sustainable building objective is to ensure that the design, construction, and operation of the building create and maintain a safe, healthy and comfortable indoor environment for the people who live in, work in, and visit in the building. Without assuring this primary function of any building, no measure undertaken to address energy use, water use, environmental impact or life cycle cost will make the building sustainable. This full-day course will teach standard methods used in the US to define, measure and evaluate indoor environments in terms of safety, health and comfort and will address the following specific areas: EPA, ASHRAE, NFPA and OSHA standards which address building occupancy, historic building health and safety, ventilation, water intrusion and mold, radon, Legionella, chemicals in buildings, air cleaning and filtration, building operations and maintenance, and case studies. Your instructor is Clifford A. Cooper, MS, CIH, LEED AP, ASHRAE HBDP, CSBA.

Tue, May 8 • 9 am - 5 pm
1 session • $179
DCB 199-02 • BRC

NEW! Environmentally Preferable Purchasing (EPP) Orientation and Workshop
This course provides participants with the knowledge and skills needed to research, bid, contract and implement an Environmentally Preferable Purchasing (EPP) program. Any organization that wants to “go green” must pay attention to the products and services that are consumed as part of its daily operations. Participants in this program will learn how to assess the products and services used in their company, find and evaluate information about green products and services, identify federal, state and other regulations on green purchasing, calculate the costs and benefits of purchasing choices, and design, implement and manage green purchasing processes. Your instructor is Evadne Giannini, HospitalityGreen, LLC.

Wed, Mar 28 - Apr 25 • 6 - 8 pm
5 sessions • $380
DCB 203-02 • BRC

NEW! An Introduction for Leading Sustainability Initiatives (Green Change Management)
This course provides participants with the knowledge and skills needed to identify, coordinate, implement and direct environmentally sustainable initiatives. Topics to be addressed include the following: sustainable operations (e.g., waste and chemical management); the built environment and new construction; environmentally preferable purchasing and supply chain management; and resource conservation and community partnerships. Your instructor is Evadne Giannini, HospitalityGreen, LLC.

Tue, Mar 27 - Apr 24 • 4 - 6 pm
5 sessions • $380
DCB 201-02 • BRC

NEW! Training for Sustainability Directors and Green Team Leaders (Green Management II)
This course is designed to develop the multiple skill sets and provide the specialized training needed to successfully manage a sustainability program that addresses not only sustainable operations, but also the built environment and new construction, environmentally preferable purchasing and supply chain management, resource conservation, and community partnerships. Hands-on training in the use of the multiple assessment and audit tools involved in sustainability initiatives are a key part of this course. This course is intended for graduates of “An Introduction for Leading Sustainability Initiatives”, current Green Team participants/leaders or individuals seriously considering employment placement as sustainability directors, environmental change managers and change facilitators. Schedule: 24 hours (12 hours of class time and 12 hours of training at an offsite facility). Your instructor is Evadne Giannini, HospitalityGreen, LLC.

Tue, Apr 10 - May 15 • 6 - 8 pm
5 sessions • $550
DCB 202-01• BRC

See our NEW Green Living Roofs course on page 61

To register call 845-339-2025
NEW! Greening Food Services
This program is designed to meet the specific needs of the food service industry. Resources, information, practical lessons and applications from field professionals will be provided to guide participants through the development and implementation of sustainable business practices in food services. Topics to be covered include the following: financially justifying a green policy and operational improvements; waste elimination; energy efficiencies for food preparation and facility management; water conservation; green cleaning; sustainable procurement practices (including sourcing green produce); marketing green; improvements to company culture; and employee training and motivation. Your instructor is Evadne Giannini, HospitalityGreen, LLC.

Wed, Mar 28 - Apr 25 • 2 - 4 pm
5 sessions • $380
DCB 204-02 • BRC

NEW! Facility “Go Green” Employee and Maintenance Training
Sustainability or “Going Green” is a commitment to achieving a zero-waste operation. For a company to successfully “Go Green” requires changes in both operational practices and company values. All employees must understand sustainable practices, have the tools and resources for continuous improvement, and the desire and drive to achieve the zero-waste goal. The goal of this course is to empower facility employees to monitor and adjust systems and personal behaviors to move the organization towards a waste-free operation. Your instructor is Evadne Giannini, HospitalityGreen, LLC.

Wed, May 2 - Jun 13
May 2 & 9, 9 am - 5 pm; May 16, 9 am - noon; May 30 & Jun 13, 2- 4 pm
5 sessions • $380
DCB 205-01 • BRC
No class May 23 & Jun 6

NEW! LED Lighting
This tutorial is addressed to architects, interior designers, engineers, contractors and building managers, and to the general public. It provides the basic knowledge required to choose LED fixtures that are efficient, sustainable, and that deliver a high quality of light required for common lighting applications. Upon introducing the operation principles and manufacturing of Light Emitting Diodes (LED), participants will learn how LEDs are assembled with optics and integrated with drivers to create complete light sources that provide energy efficient replacement of incandescent lamps, compact fluorescent lamps, fluorescent tubes and other specific lighting fixtures. Participants will learn the relevance of LED color temperature, color rendering, thermal management, reliability and life-cycle performance assessment in evaluating and selecting LED light sources and fixtures. Special attention will be given to manufacturer's claims about performances and sustainability as LED performances can vary widely from product to product and from manufacturer to manufacturer. Upon completion of this course, participants will be able to:
• Compare LED lighting fixtures with regard to color consistency and efficacy.
• Evaluate the quality and assess the reliability of LED lighting fixtures.
• Specify LED lighting fixtures to the relevant standards as defined by the IES and ANSI.
• Analyze the economic feasibility of LED lighting fixtures versus conventional lighting.
Your instructors are Jean-Claude Fouere, Renewable Energy/Energy Efficiency Instructor and Michael Stiller, LEED AP of Michael Stiller Design. Class size will be limited to 10 students.
Thu, Feb 23 • 5 - 9 pm
1 session • $150
DCB 207-02 • BRC