



Essex County College – Newark, New Jersey

Green Curriculum for Building Facilities Management

The focus of the courses shown below is to provide a foundation for many levels of employment in commercial and residential property management, and also to be compatible with a pre-engineering program that is transferable to a four-year engineering college such as the New Jersey Institute of Technology(NJIT).

With the 2008-09 IPI grant from the New Jersey Commission on Higher Education and the Department of Labor and Workforce Development, the college, with assistance from The Heldrich Center at Rutgers University, was able to develop some of its first “green” courses, which the college hopes will be the first of many green-centered degrees and course offerings.

Course Summaries

The following are full-credit 15-week community college courses that are part of a Technical Studies Associate Degree offered through the Division of Engineering Technologies and Computer Sciences at Essex County College. They may also be offered at other New Jersey community colleges. The courses also may be adapted for Adult Education for Continuing Education. Courses are expected to be available starting with Spring Semester 2010.

INTRODUCTORY AND SURVEY COURSES

1. Principles of Sustainability

This interactive course is designed to provide fundamentals of sustainability principles and practices. It is geared both for entry level students and for under/unemployed adults that are in job transition from non-environmental sectors.

It covers basic sustainability principles relative to climate change, biodiversity, population, environmental justice, ecosystem threats, renewable energy, consumption, transportation, and green design and construction.

Upon completion, students will have a heightened awareness of the use/reuse cycle and be sensitized to the myriad ways in which the environment can be protected or damaged. We expect students to begin to think about the complexities of the ecosystem and the effects actions taken today may have on future generations.

2. Alternative Energy Sources (UTI111)

This course is an introduction to electrical energy generation and its impact on the environment and society. Various energy alternatives such as solar, wind, geothermal, ocean and fuel cells are examined, along with the positive and negative aspects of each.

This course is part of the Energy Utility Technology Associate in Applied Science (A.A.S.) Degree offered by Essex County College, and is available now. It was developed with assistance from PSE&G, who also provides employment incentives. The Fall 2009 enrollment for this course is at its full capacity of 18 students.

COURSES SPECIFIC TO BUILDING FACILITIES MANAGEMENT

3. Green Facilities Management

This course is designed to be a survey of current best practices in Green Facilities Management. Students will learn how to operate an environmentally healthy facility.

The course explores why green business is good business, as well as the practical strategies for green operations. Practical, economical tactics are presented in the areas of water, cleaning, lighting, transportation, sustainable design, landscaping, recycling, energy conservation, solar power, and “green” financing. The course also addresses carbon reduction, monitoring and reporting. An overview of typical “green” measurement equipment is provided. Exercises and field trips supplement the theory presented.

4. Energy Management for Commercial Buildings

This course provides an introduction to energy management in commercial buildings. It is designed to teach how resources, particularly energy, is used in buildings and what opportunities are available to accomplish efficiency while improving performance.

Instruction reviews the customary building systems and industry audit practices suitable for commercial buildings and introduces students to the principles of commercial energy management and auditing.

Some course topics include: energy consumption characteristics of buildings, primary building systems, building control systems, energy and performance measurement devices, industry standards and benchmarks, customary energy conservation measures, financial analysis including life cycle cost analysis, energy saving incentives, introduction to the USGBC LEED Rating System, building audit practices, and building commissioning practices.

5. Energy Management for Residential Buildings

This course provides an introduction to residential building systems with a focus on energy usage, and provides an introduction to energy auditing of residential buildings.

Instruction reviews customary residential building systems, energy usage characteristics, and energy audit practices. Students will develop an understanding of the methods and equipment necessary to identify energy usage and to provide recommendations for

effective energy conservation measures. A high level overview of basic safety practices is provided.

In addition to its residential systems and energy focus, the course prepares the student to sit for the RESNET In-Home Energy Survey Professional examination. While this is a “light” certification compared to RESNET Rater or BPI Building Analyst, it nonetheless provides an employer with third party assurance of a particular body of knowledge.

This is a foundational course that can prepare students to enroll in more advanced training programs. For example, a student could pursue BPI and/or RESNET certification, or could use this course as a foundation for a career in building facilities management, green purchasing, green financing, or some other green-related field. Exercises and field trips supplement the theory presented.

Contact Information:

ECC Project Director: Professor Michael King, Chair, Business Division (973)877-3443

ECC Project Manager: Mr. John Vadnais, MBA (973)476-3009