HOLYOKE COMMUNITY COLLEGE
Format for NEW Course Proposals

In preparing a new course proposal, please fill out this form completely, including all categories.

Date: 3/23/2010

Course No. (coordinated with Registrar) SUS 103

Course Title Energy Efficiency and Conservation Methods

Transfer Compact Code, if any (A, B, C, D) D

No. of Credits: 4 Contact Hours: Lecture Hours: 3 Lab Hours: 3

Clinical Hours: Other Hours: Studio Hours

Course Description as it would appear in catalog:

This course provides the students with the opportunity to understand and explore energy efficiency/ conservation strategies. In lab, students will learn to demonstrate the appropriate usage of energy monitoring and measuring equipment commonly used by energy specialists and energy auditors. In the field, energy consuming facilities, both residential and commercial, will be analyzed by students for energy efficiency. Students will learn to calculate energy savings and environmental impacts in order to assess the optimum energy consumption strategies.

Prerequisites: SUS 102: Introduction to Sustainable Energy Resources

STATEMENT OF PURPOSE, including, if possible, the place and function of the course in the total college curriculum and/or specific areas of study, the relation, if any, to other courses in the same or closely allied fields or disciplines, suggested students for whom the course might be particularly useful, and any other information that might be helpful to those reviewing the proposal and to future instructors of this course.

This course will be a suggested elective for students in one of the three Sustainability Studies Options. It will also be a required course for the newly developed Solar Energy Certificate Program. The course should appeal to students interested in sustainability studies, and business and engineering fields, as well as students in the market for "green jobs".

Objectives for the course: May include student-learning outcomes here.

Upon successful completion of this course the student should be able to:
1. explain all of the energy efficiency/conservation methods available for energy use reduction;
2. demonstrate energy savings and environmental impacts for most energy efficiency methods in order to identify and assess energy conservation opportunities;
3. demonstrate the appropriate usage of energy monitoring and measuring equipment commonly used be energy specialists and energy auditors.

Special problems likely to be encountered in teaching this course.

The equipment necessary to teach the topics of energy efficiency is specialized. Through a grant from the Commonwealth Corporation, this equipment will be available to use through a sharing program with Nuestras Raices.

Typical methods of testing and evaluation of students in such a course.

Lecture, discussion, research papers, individual and small group projects, quizzes, exams and laboratory.

AUTHOR AND TITLE OF TEXTBOOKS and other instructional materials, including library acquisitions suggested for this course.

1. Energy Efficiency: Principles and Practice, by Penni McLean-Conner. Penwell Corporation, 2009.
2. Energy Efficiency Upgrades: Principles, Details and Examples, by Clemens Richarz, Christina Schultz and Friedemann Zeitler. Munich University Press, 2007.
3. Financing Energy Efficiency: Lessons From Brazil China, India and Beyond, by Robert Taylor et.al. The World Bank, 2009.

Basic outline of course content, indicating major and minor emphases.

Major	Minor
Lecture 1. Basic energy efficiency and conservation methods including low/no cost energy conservation methods (ECM), weatherization ECMs. 2. Replacements vs. retrofits 3. Data acquisition, monitoring and auditing 4. System balancing equipment 5. Energy bill analysis 6. HVAC ECMs 7. Energy Star and other rating systems 8. Domestic water heating ECMs 9. Compressed air ECMs 10. Building envelope ECMs 11. Electrical ECMs 12. Energy suppliers and fuel acquisition 13. Prioritization of ECMs based on cost effectiveness and environmental impacts 14. Case studies Laboratory 1. Basic principles of heat and electricity with kit 2. Electrical efficiency with kit 3. Heat loss with kit 4. Air sealing with kit 5. Insulation removal with kit 6. Insulation installation with kit 7. Blower door testing 8. Infrared imaging with kit 9. Auditing of residential property 10. Auditing of commercial property	All topics have equal emphasis.

Name of author or co-authors of the proposal.

Kate Maiolatesi

Describe additional resources required:

Faculty and other personnel (full-time/part-time):	Adjunct faculty may be needed.
Facilities (dedicated and/or shared:	Classroom and lab space needed. Space is available at Nuestras Raices for lab sessions but transportation to the facility would be required.
Equipment (non-computer):	Specialized equipment is needed however all equipment is available through collaboration with Nuestras Raices.
Other resources required:	none
Computer hardware, software, support including AV and Multimedia	none

Date:

CIO Signature

I have reviewed the course proposal and have requested transfer eligibility from area colleges.

Date:

Director of Transfer Affairs:

Date:

Registrar

Semester and year New Course will be implemented:

Signature of Dean of Originating Division - signifying approval by the Division.

Vote: Date: Signature Field

Signature of Dean(s) of Other Divisions, whose students would be directly affected by the proposal, signifying the concurrence of their division, (Indicate n/a if this does not apply.)

Vote: Date: Signature Field

Signature of Curriculum Committee Chair - signifying approval of the Committee.

Vote: Date: Signature Field

Signature of Senate President - signifying approval of the Senate.

Vote: Date: Signature Field