**BARTON COMMUNITY COLLEGE**

**COURSE SYLLABUS**

**SPRING 2010**

# **GENERAL COURSE INFORMATION**

Course Number: LIFE 1425

Course Title: Residential Energy Efficiency

Credit Hours: 3

Prerequisite: None

Division/Discipline: Environmental Technology

Course Description: This course is designed to provide the student with information on the principles, methods and materials that have proven to be effective in improving the energy efficiency of residential buildings. All necessary components of effective use of energy in residential buildings will be covered.

# **CLASSROOM POLICY**

Students and faculty of Barton Community College constitute a special community engaged in the process of education. The College assumes that its students and faculty will demonstrate a code of personal honor that is based upon courtesy, integrity, common sense, and respect for others both within and outside the classroom.

The College reserves the right to suspend a student for conduct that is detrimental to the College's educational endeavors as outlined in the College catalog.

Plagiarism on any academic endeavors at Barton Community College will not be tolerated. Learn the rules of, and avoid instances of, intentional or unintentional plagiarism.

Anyone seeking an accommodation under provisions of the Americans with Disabilities Act should notify Student Support Services.

# **COURSE AS VIEWED IN THE TOTAL CURRICULUM**

This course introduces the student to Residential Energy Efficiency principles. All aspects of cost savings and comfort for existing buildings will be covered. It is designed to provide students with an opportunity to apply efficient energy practices and concepts through research and review of current literature.

# **ASSESSMENT OF STUDENT LEARNING / COURSE OUTCOMES**

Barton Community College assesses student learning at several levels:  institutional, program, degree and classroom.  The goal of these assessment activities is to improve student learning.  As a student in this course, you will participate in various assessment activities.  Results of these activities will be used to improve the content and delivery of Barton’s instructional program.

## Course Outcomes:

1. Define the principle elements of energy.
2. Understand the basic concepts of building design and air flow.
3. Describe the principles of air leakage and how to correct them.
4. Identify the characteristics of effective insulation.
5. Describe the various windows and doors used to increase energy efficiency.
6. Identify the types of heating systems used to increase energy efficiency.
7. Understand the concepts of effective lighting and appliances.
8. Identify effective cooling systems.
9. Describe water-heating energy use.
10. Define the effects of energy on health and safety.

# **COURSE COMPETENCIES**

1. Explain the concepts of energy transformation and heat flow.
2. Describe how to convert energy for home use.
3. Identify electrical circuits and devices.
4. Describe effective building construction techniques.
5. Identify how to find air leaks.
6. Describe construction flaws and air leakage.
7. Identify air-sealing methods and materials.
8. Explain insulation usage in new construction.
9. Identify insulation types.
10. Explain how to retrofit insulation.
11. Describe window and door characteristics and components.
12. Identify window treatments and structure.
13. Define combustion heating safety and efficiency.
14. Describe heating systems used in residential buildings.
15. Identify energy efficient lighting systems.
16. Describe the types of energy efficient appliances.
17. Define the difference between heating and cooling systems.
18. Explain how the various types of cooling systems function.
19. Identify the types of energy efficient water-heating systems.
20. Explain how to increase water-heating efficiency.
21. Identify the best ways to ventilate residential buildings.
22. Explain how building materials can adversely affect health and safety.

# **INSTRUCTOR'S EXPECTATIONS OF STUDENTS IN CLASS**

# **TEXTBOOKS AND OTHER REQUIRED MATERIALS**

# **REFERENCES**

# **METHODS OF INSTRUCTION AND EVALUATION**

# **ATTENDANCE REQUIREMENTS**

# **COURSE OUTLINE**