Clackamas Community College

Online Course/Outline Submission System

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Section #1 General Course Information

Department: Manufacturing

Submitter

First Name: Abe
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Course Prefix and Number: RET - 209

 # Credits: 3

Contact hours

Lecture (# of hours):
Lec/lab (# of hours): 66
Lab (# of hours):
Total course hours: 66

For each credit, the student will be expected to spend, on average, 3 hours per week in combination of in-class and out-of-class activity.

Course Title: Renewable Energy I: Energy Efficiency

Course Description:

This course concentrates on the conservation of scarce energy resources in residential, commercial and industrial applications. The course will examine the common sources of energy loss in building systems and homes, industrial processes and transportation. Students will be introduced to residential energy audits and mitigation. Topics will also include regenerative transportation systems, LEED certification, test instruments, insulation values, heat exchangers and financial payback period. Includes hands-on lab exercises.

Type of Course: Career Technical Preparatory

Is this class challengeable?

Yes

Can this course be repeated for credit in a degree?

No

Is general education certification being sought at this time?

No

Does this course map to any general education outcome(s)?

No

Is this course part of an AAS or related certificate of completion?

Yes

Name of degree(s) and/or certificate(s): Manufacturing Programs

Are there prerequisites to this course?

Yes

Pre-reqs: RET-200

Have you consulted with the appropriate chair if the pre-req is in another program?

No

Are there corequisites to this course?

No

Are there any requirements or recommendations for students taken this course?

No

Are there similar courses existing in other programs or disciplines at CCC?

No

Will this class use library resources?

Yes

Have you talked with a librarian regarding that impact?

No

Is there any other potential impact on another department?

No

Does this course belong on the Related Instruction list?

No

GRADING METHOD:

A-F or Pass/No Pass

Audit: No

When do you plan to offer this course?

✓ Winter

Is this course equivalent to another?

If yes, they must have the same description and outcomes.

No

Will this course appear in the college catalog?

Yes

Will this course appear in the schedule?

Yes

Student Learning Outcomes:

Upon successful completion of this course, students should be able to:

1. demonstrate an understanding of the sources of energy loss,
2. quantify the energy inputs of a system and determine the requirements of the output based upon electrical, mechanical and thermal work;
3. determine the energy efficiency of a building and transportation system,
4. perform a basic residential energy audit,
5. identify and differentiate commercially-available energy efficient products for consumers and institutions,
6. explain the economic factors of each type of energy,
7. explain the environmental issues relevant to each type of energy.

This course does not include assessable General Education outcomes.

Major Topic Outline:

1. Energy Units and Calculations.
2. Instruments and Measurement.
3. Residential Energy Efficiency.
a. Residential Design.
b. LEED Certification.
c. Retrofitting.
d. Education and Outreach.

4. Commercial and Industrial Energy Efficiency.
a. Process Evaluation.
b. Environmental Controls.
5. Energy Efficiency in Transportation.
6. Analysis of Energy Consumption and Efficient Technologies.

Does the content of this class relate to job skills in any of the following areas:

1. Increased energy efficiency   **No**

2. Produce renewable energy   **No**

3. Prevent environmental degradation   **No**

4. Clean up natural environment   **No**

5. Supports green services   **No**

Percent of course: 0%

First term to be offered:

Next available term after approval
: