

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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Email: **abef**

Course Prefix and Number: RET - 200

Credits: 4

Contact hours

Lecture (# of hours): 44
Lec/lab (# of hours):
Lab (# of hours):
Total course hours: 44

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 Systems

Course Description:

This course provides a survey of various renewable energy systems. Participants will learn about the benefits and limitations of each type of energy source as well as their functional principles. Student will participate in several field learning exercises related to energy systems. The intended audiences are technical students wishing to explore the Renewable Energy field and students from the humanities and social sciences wanting a better understanding of this socially important technology.

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?

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: Yes

When do you plan to offer this course?

✓ **Fall**

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. explain the First Law of Thermodynamics,
2. list the four basic energy forms,
3. describe 8 major sources of renewable energy,
4. describe the principles of each of the sources of renewable energy,
5. explain benefits of each of the sources of renewable energy,
6. explain environmental impact and safety of each source of renewable energy,
7. identify issues around sustainable energy sources,
8. evaluate an energy system based on economic and environmental considerations,
9. create a model of a small energy system,
10. design and develop a small-scale renewable energy system to power a device.

This course does not include assessable General Education outcomes.

Major Topic Outline:

1. Introduction to Renewable Energy.
2. Solar Thermal Energy.
3. Solar Photovoltaics.
4. Bioenergy.
5. Hydroelectricity.
6. Tidal Power.
7. Wind Energy.
8. Wave Energy.
9. Geothermal Energy.
10. Energy System Integration.

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

- | | |
|--------------------------------------|------------|
| 1. Increased energy efficiency | Yes |
| 2. Produce renewable energy | Yes |
| 3. Prevent environmental degradation | Yes |
| 4. Clean up natural environment | No |
| 5. Supports green services | Yes |

Percent of course: 100%

First term to be offered:

Next available term after approval

:

