

Clackamas Community College
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Section #1 General Course Information

Department: Energy and Utility Resource Management

Submitter

First Name: Shelly

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Course Prefix and Number: UG - 112

Credits: 5

Contact hours

Lecture (# of hours): 55

Lec/lab (# of hours):

Lab (# of hours):

Total course hours: 55

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: Hydro-Generation: Electric Theory II

Course Description:

This course will instruct students on the fundamentals of AC electrical theory and operations.

Type of Course: Career Technical Preparatory

Is this class challengeable?

No

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): Generation Technologies AAS Degree, Hydro-Generation Operator One Year Certificate and Hydro-Generation Pathway Certificate

Are there prerequisites to this course?

Yes

Pre-reqs: UG-111 Hydro-Generation: Electric Theory I

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 Only

Audit: No

When do you plan to offer this course?

✓ **Not every term**

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?

No

Will this course appear in the schedule?

No

Student Learning Outcomes:

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

1. describe the general set-up and operation of a hydro power plant facility,
2. explain AC electrical theory including: inductance, capacitance, reactance, reactive (real and apparent power), power factor, VARS and single and three phase systems;
3. calculate various AC electrical system values, to include inductance, capacitance, reactance, power factor and real, apparent and reactive power.

This course does not include assessable General Education outcomes.

Major Topic Outline:

1. Hydro plant operations.
2. AC electrical theory.
3. How AC electrical systems operate.
4. AC system calculations.

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:

Specify term: Fall 2015
