

Clackamas Community College

Online Course/Outline Submission System

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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 - 122**# 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: Fundamentals II**Course Description:**

Second of three courses designed to instruct second year students on the physics and mechanical concepts of hydro power plant systems. This includes mechanical and fluid concepts, turbine operation, hydro power plant theory and design, including water, air and hydraulic systems.

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-121 Hydro-Generation: Fundamentals 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. apply the principles of impulse,
2. explain the concepts of fluid mechanics as they relate to hydro power plant operations,
3. explain and calculate the basic concepts and operations of a hydraulic power system,
4. explain the concepts and calculate the power output of a hydro power plant,
5. describe the auxiliary systems required for hydro plant operations.

This course does not include assessable General Education outcomes.

Major Topic Outline:

1. Impulse and momentum.
2. Principles of angular motion in a plane and ridged body rotation.
3. Review of simple machines.
4. Principles of fluid mechanics.
5. Concepts and operation of hydraulic power systems.
6. Design and power output of a hydro power plant.
7. Auxiliary systems.

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

:
