

## 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

Last Name: Tracy

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**Course Prefix and Number:** UG - 221

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**# 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.

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**Course Title:** Hydro-Generation: Operations I

**Course Description:**

This is the first of three courses designed to instruct third-year students on the applications of hydro plant and power generation systems, reading system schematics, turbine control and monitoring, environmental issues and regulations.

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**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:** MTH-95 or instructor consent

**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?

**Yes**

**Recommendations:** Take 200 level UG classes in sequence, but not required.

**Requirements:** MTH-95 or successful completion of the POSS test.

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. explain generator governor control and operation,
2. explain the principles of operating plant electrical equipment,
3. explain the principles of hydro power plant and river control operations,
4. apply principles of dam safety and monitoring,
5. identify and expand on regulations of FERC and other agencies,
6. state the impact of environmental issues and regulation on hydro operations,
7. utilize system schematics and diagrams.

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***This course does not include assessable General Education outcomes.***

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Major Topic Outline:

1. Principles of river control.
2. Dam safety and monitoring.
3. FERC and other agencies' regulations.
4. Licensing issues.
5. Fish passage and environmental issues.

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**

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