

Clackamas Community College
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Section #1 General Course Information

Department: Engineering Science

Submitter

First Name: **Matthew**

Last Name: **LaForce**

Phone: **3148**

Email: **laforce**

Course Prefix and Number: WET - 030

Credits: 3

Contact hours

Lecture (# of hours): 33

Lec/lab (# of hours):

Lab (# of hours):

Total course hours: 33

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: Wastewater Operations III

Course Description:

For professional upgrade only. Does meet the requirements for the certificate or degree. Design, operation, process control and maintenance of treatment facilities. Current treatment processes discussed in detail with particular attention given to biological sludge handling process. No lab requirement for this course.

Type of Course: Career Technical Supplementary

Can this course be repeated for credit in a degree?

No

What is the target audience/industry for this class?

wastewater operators

Are there prerequisites to this course?

Yes

Pre-reqs: Pass WET-020

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: Yes

When do you plan to offer this course?

✓ Spring

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. understand the principles involved with the disinfection processes for wastewater using available technologies,
 - a. chlorination with gas, liquid, and solid forms,
 - b. ultra-violet light (U-V),
 - c. ozonation (O₃);
2. understand sludge management/processing schemes,
 - a. points of Generation,
 - b. concentration,
 - c. biological Reduction,
 - d. heat Treatment,
 - e. burning/Vaporizing;
 - f. ultimate Disposal into the Environment;
3. understand the principles of sludge biological digestion,
 - a. aerobic Process, Ambient Temperature,
 - b. anaerobic Processes,
 - b1. psychophilic,
 - b2. mesophilic,
 - b3. thermophilic;
4. understand questions and probable answers for sludge/solids and disinfection related questions likely to appear on an Accredited Board of Certification exam as administered by the Oregon State Department of Environmental Quality.

This course does not include assessable General Education outcomes.

Major Topic Outline:

1. Solids (Residue) Discussion/Solids Handling.
2. Solids Side-stream Processing.
3. Solids Processing Flow Diagram.
4. Solids Management.
5. Solids Handling/Specific Gravities of Sludge Streams.
6. Aerobic & Anaerobic Digestion.
7. Plant Safety.
8. Pumps and Pump Application.
9. WWTP Maintenance.

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

:
