

Clackamas Community College

Online Course/Outline Submission System

Show changes since last approval in red

WET-135 High Purity Water Production II

General education certified: Yes No

- Writing
- Oral Communication
- Arts and Letters
- Science & Computer Science
- Mathematics
- Social Science
- Cultural Literacy
- Health & Physical Education

Approved Date (mm/dd/yyyy): / /

Section #1 General Course Information

Department: Engineering Science

Submitter

First Name: **Matthew**

Last Name: **LaForce**

Phone: **3148**

Email: **laforce**

Course Prefix and Number: WET - 135

Credits: **4**

Contact hours

Lecture (# of hours): 33

Lec/lab (# of hours):

Lab (# of hours): 33

Total course hours: 66

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: High Purity Water Production II

Course Description:

A lab course focusing on the operation of equipment and unit processes in the production of high purity water. Emphasis on process equipment sizing and design, process control and troubleshooting.

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): High Purity Water Certificate

Are there prerequisites to this course?

Yes

Pre-reqs: Pass WET-125 and MTH-082E

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?

Not every year

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. trend and graphically represent RO operating data and describe common operating problems and fixes;
2. analyze Ion Exchange operating data and describe the importance of each parameter to process control;
3. describe common filtration processes, their mechanisms, monitoring methods and performance characteristics;
4. describe operation and maintenance of high-purity water systems as related to analytical laboratory testing.

This course does not include assessable General Education outcomes.

Major Topic Outline:

1. Reverse Osmosis Performance Trending and Troubleshooting.
2. Ion Exchange Performance Trending and Troubleshooting.
3. Filtration, filtration lab.
4. Tanks, Pumps and System Hydraulics.
5. Materials of Construction, midterm test handout.
6. Chemical Pretreatment, chemical treatment lab.
7. TOC Sources, Control Methods and Analysis, TOC lab.
8. Silica and Boron Sources, Control Methods and Analysis, silica analysis lab.
9. Bacteria monitoring and control, lab.
10. pH, ORP and Sodium Analysis, lab.

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

:
