

Clackamas Community College

Online Course/Outline Submission System

Show changes since last approval in red

WET-280 Water & Environmental Projects 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 - 280

Credits: 5

Contact hours

Lecture (# of hours):

Lec/lab (# of hours):

Lab (# of hours): 180

Total course hours: 180

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: Water & Environmental Projects II

Course Description:

Practical work experience in a municipal industrial treatment, distribution, or collection system. Placement in consulting firms, federal and state regulatory agencies, BLM, BPA, and other regulated governmental organizations. Practical experience in a municipal, public or private wastewater treatment facility of specific activated sludge design. Process loading criteria, data acquisition & trend charting, and relevant sanitary process strategies will be addressed.

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): Water Quality AAS

Are there prerequisites to this course?

No

Are there corequisites to this course?

Yes

Co-reqs: Instructor consent and a CWE Seminar

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?

Fall

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. acquire operational and maintenance experience inside a water or wastewater facility,
2. compare and contrast primary, secondary, and post-secondary treatment technologies;
3. document a minimum of 120 hours of a facility practicum,
4. describe the operating procedures for all component programs/equipment being observed,
5. describe the O&M, laboratory component, pumping systems (as applicable), record keeping, PM program, legal considerations, time and equipment required for successful entry into the job marketplace.

This course does not include assessable General Education outcomes.

Major Topic Outline:

1. Maintain a Field Laboratory Notebook in which the following information will appear:
 - a. One title page with the treatment plant name, your name, dates of internship, and other "lead in" information (i.e. supervisor) as you see appropriate.
 - b. The notebook will be organized according to the following seven (7) TABS.
 - b1. TAB 1 will include a one-page verified letter stating that you have completed at least 120 intern hours at your host facility. The letter will include a brief description of your activities at the host facility and will be on "official" letterhead and signed by a supervisor and/or the facility superintendent.
 - b2. TAB 2. This tab will include all of the information used to describe Trend Chart #1, (TC#1). TC#1 is a plot of Sludge Age SA with respect to suspended solids (SAss), and the secondary wastewater effluent (SE) contaminants BOD and TSS. Additionally, you will have a one page summary to describe and analyze the appropriate correlations, if any, between SAss, SEBOD and SETSS.
 - b3. TAB 3. This tab will include all of the information used to describe TC#2. TC#2 is a trend plot of the Food to Micro-organism Ratio (F/M) and both the SEBOD and SETSS on the same graph. The F/M will use Mixed Liquor Volatile Suspended Solids (MLVSS) as the estimate of "Organic" solids concentration. Use one page to summarize your findings for F/M and its "worth" in describing what happened in the treatment plant some 5 days earlier.
 - b4. TAB 4. Contained within this tab will be the information used to describe TC#3. TC#3 is a plot of the Mean Cell Residence Time (MCRT) on the same graph as the SEBOD and SETSS. Try to base the MCRT on the best available information including the sludge contained in the secondary clarifier. Again, use one page to summarize the possible observations that would lead

to a correlation between MCRT and effluent quality.

b5. TAB 5 will contain the trend plot of the sludge Volume Index (SVI) or the Sludge Density Index (SDI) with SEBOD and SETSS and a summary page of possible correlations between either of the sludge indices and effluent quality. This plot will be known as TC#4.

b6. TAB 6. This tab will contain and display your Specific Oxygen Consumption Rate (SOCR) data. You are required to perform 4 SOCR tests on the mixed liquor during this term. Do no more than one test per week. Additionally, you are required to perform 1 FED and 1 UNFED OCR test during this term and calculate the resulting Loading Factor (LF). Use one page to state your observations and conclusions concerning these tests and the relevance of the Loading Factor with established standards.

b7. TAB 7. Within this important tab will be your Mallowry plotting information. You can choose which combinations of parameters you want to plot onto trend charts of SEBOD and SETSS. You must plot WCR, SAmallowry, SCY, SDR, and SAR. You may label these plots in any series that you choose such as TC#5, 6, 7, 8, and 9. Summarize each trend parameter and its relationship with effluent quality.

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

:
