Course Outline

COURSE: WTRM 107      DIVISION: 50      ALSO LISTED AS:

TERM EFFECTIVE: Fall 2018      Inactive Course

SHORT TITLE: BEG WASTEWATER TRT OPS

LONG TITLE: Beginning Wastewater Treatment Operations

<table>
<thead>
<tr>
<th>Units</th>
<th>Number of Weeks</th>
<th>Contact Hours/Week</th>
<th>Total Contact Hours</th>
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</thead>
<tbody>
<tr>
<td>3</td>
<td>18</td>
<td>Lecture: 3</td>
<td>Lecture: 54</td>
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<td></td>
<td></td>
<td>Lab: 0</td>
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<td></td>
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<td>Other: 0</td>
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<td></td>
<td></td>
<td>Total: 3</td>
<td>Total: 54</td>
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COURSE DESCRIPTION:

This course covers an introduction to the operations and maintenance of a wastewater treatment facility. Topics include industry careers, certifications, advanced wastewater treatment methods, valves and equipment, as well as industry standard math formulas and conversion factors. This course is now listed as WTRM 207. ADVISORY: Eligible for Math 205.

PREREQUISITES:

COREQUISITES:

CREDIT STATUS: D - Credit - Degree Applicable

GRADING MODES

L - Standard Letter Grade

REPEATABILITY: N - Course may not be repeated

SCHEDULE TYPES:

02 - Lecture and/or discussion

STUDENT LEARNING OUTCOMES:

1. Describe how to engage in industry networking; list industry acronyms; discuss career opportunities; identify state and voluntary certifications and their issuing organizations; and describe the application of basic math in wastewater treatment.

Measure of assessment: Exams, homework problems

Year assessed, or planned year of assessment: Fall 2016

1/25/2018
2. Explain the basics of wastewater treatment, including the characteristics of wastewater, wastewater collection systems, and associated basic math.

Measure of assessment: Exams, homework problems.

Year assessed, or planned year of assessment: Fall 2016

3. Define the differences between preliminary treatment and primary treatment.

Measure of assessment: Exams

Year assessed, or planned year of assessment: Fall, 2016

4. Explain critical biological concepts, including those associated with pond and lagoons.

Measure of assessment: Exams

Year assessed, or planned year of assessment: Fall, 2016

5. Discuss secondary treatment, fixed film processes, trickling filters and rotating biological contactors.

Measure of assessment: Exams

Year assessed, or planned year of assessment: Fall, 2016

6. Describe secondary treatment, suspended film processes, activated sludge, combined processes and trickling filter solids contact.

Measure of assessment: Exams, homework problems

Year assessed, or planned year of assessment: Fall, 2016

7. Describe the processes for the disinfection of wastewater, including thickening of sludge solids.

Measure of assessment: Exams, homework problems

Year assessed, or planned year of assessment: Fall, 2016

8. Describe the components of sludge digestion, including aerobic digestion, anaerobic digestion, sludge processing, bio-solids processing and bio-solids disposal.

Measure of assessment: Exams, homework problems

This section does not contain any data.

9. Explain final effluent disposal, including secondary and tertiary effluent.

Measure of assessment: Exams, homework problems

This section does not contain any data.

10. Describe the roles of laboratory sampling and testing, as well as facility and equipment maintenance and safety in wastewater plant operations.

Measure of assessment: Exams, homework problems

Year assessed, or planned year of assessment: Fall, 2016

CONTENT, STUDENT PERFORMANCE OBJECTIVES, OUT-OF-CLASS ASSIGNMENTS

Inactive Course: 11/13/2017

2 Hours


Out-of-Class Assignments: For each topic, students will review in class, and text book examples to complete hand-out homework assignments.

6 Hours


Student Performance Objectives (SPO): Define and

Out-of-Class Assignments: For each topic, students will review in class, and text book examples to complete hand-out homework assignments.

6 Hours

Content: Preliminary Treatment. Primary Treatment. Basic Math.


Out-of-Class Assignments: For each topic, students will review in class, and text book examples to complete hand-out homework assignments.

6 Hours


Student Performance Objectives (SPO): Outline the Key Biological Actions in Wastewater Treatment. Identify the Common Types of Bacteria in the Various Biological Processes. Recognize how Temperature, pH, and Dissolved Oxygen Affect Biological Processes. Identify the Various Types of Ponds Used. Describe Parameters of Pond Classification. Describe Operational Controls of the Different Classification of Ponds. Calculate Hydraulic and Organic Loading to the Ponds. Calculate Pond Evaporation Rate. Convert Temperature from Degrees Fahrenheit to Centigrade, and from Degrees Centigrade to Fahrenheit.

Out-of-Class Assignments: For each topic, students will review in class, and text book examples to complete hand-out homework assignments.

3 Hours


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3 Hours


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6 Hours

Content:


Student Performance Objectives (SPO): Identify the Disinfection Methods Used in the Wastewater Industry. Identify the Equipment Used by Different Disinfection Processes. Discuss the 3 Forms of Chlorine Widely Used (Gas, Liquid, Dry) Explain the Safe Handling and Use of Chlorine and Personal Protection Equipment Required. Explain the Purpose for Chlorine Contact Time. Identify the Various Methods of Sludge Thickening. Describe the Various Types of Sludge to be Thickened. Calculate Thickened Sludge Feed Rates. Calculate Pounds of Chlorine Needed based on Percent Strength of the Chlorine Used (Gas, Liquid, Dry) Manipulate Dose, Demand, and Residual Formulas.

Out-of-Class Assignments: For each topic, students will review in class, and text book examples to complete hand-out homework assignments.

6 Hours


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2 Hours
METHODS OF INSTRUCTION:
Lecture and discussion Visual Aids Demonstrations Facilities Tours (as available) Class Participation
Quizzes In class worksheets Exams Homework

METHODS OF EVALUATION:
Writing assignments
Percent of total grade: 10.00 %
Percent range of total grade: 10 % to 20 % Written Homework Other: In Class Worksheets
Problem-solving assignments
Percent of total grade: 40.00 %
Percent range of total grade: 40 % to 60 % Homework Problems Quizzes Exams Other: In Class Worksheets
Skill demonstrations
Percent of total grade: 0.00 %
Percent range of total grade: 0 % to 10 % Class Performance/s
Objective examinations
Percent of total grade: 40.00 %

REPRESENTATIVE TEXTBOOKS:
Required Representative Textbooks
Reading Level of Text, Grade: 11th Verified by: Dana Young

ARTICULATION and CERTIFICATE INFORMATION
  Associate Degree:
  CSU GE:
  IGETC:
  CSU TRANSFER:
    Transferable CSU, effective 201230
  UC TRANSFER:
    Not Transferable

SUPPLEMENTAL DATA:
Basic Skills: N
Classification: Y
Noncredit Category: Y
Cooperative Education:
Program Status: 1 Program Applicable
Special Class Status: N
CAN:
CAN Sequence:
CSU Crosswalk Course Department: WTRM
CSU Crosswalk Course Number: 107
Prior to College Level: Y
Non Credit Enhanced Funding: N
Funding Agency Code: Y
In-Service: N
Occupational Course: C
Maximum Hours: 3
Minimum Hours: 3
Course Control Number: CCC000529233
Sports/Physical Education Course: N
Taxonomy of Program: 095800