

Course Outline

COURSE: WTRM 113 **DIVISION:** 50 **ALSO LISTED AS:**

TERM EFFECTIVE: Fall 2018 **Inactive Course**

SHORT TITLE: BEG WASTEWATER COLLECTION

LONG TITLE: Beginning Wastewater Collection

Units	Number of Weeks		Contact Hours/Week		Total Contact Hours
3	18	Lecture:	3	Lecture:	54
		Lab:	0	Lab:	0
		Other:	0	Other:	0
		Total:	3	Total:	54

COURSE DESCRIPTION:

This course covers the proper installation, inspection, operation, maintenance and repair of wastewater collection systems. It provides the knowledge and skills required to effectively operate and maintain collection systems. This course also provides knowledge as to why collection systems affect treatment facilities and how they have a significant impact on the operation and maintenance costs and effectiveness of these systems. This course is now listed as WTRM 213. **ADVISORY:** WTRM 101 Introduction to Water/Wastewater Technology; WTRM 102 Beginning Water/Wastewater Mathematics.

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. Outline the primary goals of collection systems.

Measure of assessment: Quiz, Exam

Year assessed, or planned year of assessment: Fall 2017

2. Explain why wastewater collection systems must be properly operated and maintained.
Measure of assessment: Quiz, Exam
Year assessed, or planned year of assessment: Fall 2017
3. Describe the tasks that the collection operator is expected to complete to keep the collection system functioning as intended.
Measure of assessment: Quiz, Exam
Year assessed, or planned year of assessment: Fall 2017
4. Describe how to inspect and test newly constructed sewer mains and existing wastewater collection systems.
Measure of assessment: Quiz, Exam
Year assessed, or planned year of assessment: Fall 2017
5. Explain how to locate and evaluate stoppage problems.
Measure of assessment: Quiz, Exam
Year assessed, or planned year of assessment: Fall 2017
6. Describe the selection and operation of equipment to resolve identified problems and minimize recurrence of problems on the collection system.
Measure of assessment: Quiz, Exam
Year assessed, or planned year of assessment: Fall 2017
7. Explain why wastewater collection systems must be properly operated and maintained.
Measure of assessment: Quiz, Exam
This section does not contain any data.
8. Explain both the method of selection and the application of various chemicals.
Measure of assessment: Quiz, Exam
Year assessed, or planned year of assessment: Fall 2017
9. Describe how to organize and administer the operation and maintenance of wastewater collection systems.
Measure of assessment: Quiz, Exam
Year assessed, or planned year of assessment: Fall 2017

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

Inactive Course: 11/13/2017

3 Hours

Content: The Wastewater Collection System Operator

Student Performance Objectives (SPO): The student will be able to explain the type of work done by collection operators, describe where to look for jobs in this profession, outline how to learn or determine procedures necessary to perform the collection system operator's job.

Out-of-Class Assignments: Read Chapter 1 from the Kerri Book

3 Hours

Content: Why Collection System Operation and Maintenance?

Student Performance Objectives (SPO):

Out-of-Class Assignments:

6 Hours

Content: Wastewater Collection Systems - Purpose, Components and Design

Student Performance Objectives (SPO): The student will be able to describe the problems of operating and maintaining a wastewater collection system, justify the need to operate and maintain the system, and understand what collection systems are expected to achieve.

Out-of-Class Assignments:

12 Hours

Content: Application of Arithmetic to Collection Systems

Student Performance Objectives (SPO): The student will become familiar with basic mathematical concepts that are used in collection systems including area, volume, flow, and velocity.

Out-of-Class Assignments: Take home graded assignments.

8 Hours

Content: Safe Procedures

Student Performance Objectives (SPO): The student will learn different procedures including traffic safety, vehicle operation, using gas detection equipment, confined space procedures, Electrical hazard prevention, fires, and noise protection.

Out-of-Class Assignments: Read Chapter 4 from the Kerri Book, Midterm Exam

6 Hours

Content: Inspecting and Testing Collection Systems

Student Performance Objectives (SPO): The student will be able to inspect existing sewers, inspect new sewer installations, test for leaks in joints, taps, sewers, and manholes, provide meaningful reports to superiors on pipeline condition, and effectively use inspecting and testing tools including closed-circuit television, smoke testing, dye testing, and pipeline lamping.

Out-of-Class Assignments: Read Chapter 5 from the Kerri Book

6 Hours

Content: Pipeline Cleaning and Maintenance Methods

Student Performance Objectives (SPO): The student will be able to identify types and causes of sewer stoppages; select proper methods to clear stoppages and clean sewers; record essential data regarding cleaning and cleaning operations; become familiar with equipment and techniques including Balling, High Velocity cleaning, Flushing, Sewer Scooters, Bucket Machines, and hand rods.

Out-of-Class Assignments: Read Chapter 6 from the Kerri Book

4 Hours

Content: Underground Repair

Student Performance Objectives (SPO): The student will understand how to safely repair or construct sewer lines and manholes; determine the need for shoring and describe shoring regulations; excavate, repair, and backfill service and main lines; raise a manhole frame and cover to grade; repair and install manhole bottoms; and seal leaky sewers by grouting.

Out-of-Class Assignments: Read Chapter 7 from the Kerri Book

2 Hours

Final

METHODS OF INSTRUCTION:

Lecture Presentation and Instruction Video presentations Guest Lecturer Off-site Field Trip Take-home work problem work sheets with sample problems to be graded and discussed in class.

METHODS OF EVALUATION:

Writing assignments

Percent of total grade: 0.00 %

Course primarily involves skill demonstration or problem solving

Problem-solving assignments

Percent of total grade: 30.00 %

Percent range of total grade: 30 % to 60 % Homework Problems Quizzes

Skill demonstrations

Percent of total grade: 0.00 %

Percent range of total grade: 0 % to 10 % Performance Exams

Objective examinations

Percent of total grade: 40.00 %

Percent range of total grade: 40 % to 60 % Multiple Choice True/False Other: Math - Show work

Other methods of evaluation

Percent of total grade: 0.00 %

REPRESENTATIVE TEXTBOOKS:

Required Representative Textbooks

Kenneth D Kerri. Operation and Maintenance of Wastewater Collection Systems Volume 1, 7th Edition, or other appropriate college level text. . California State University, Sacramento: University Enterprises, Inc.,2015.

This text is an industry standard text.

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: 113

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: CCC000529238

Sports/Physical Education Course: N

Taxonomy of Program: 095800