GAVILAN COLLEGE
5055 Santa Teresa Blvd
Gilroy, CA 95023

Course Outline

COURSE: WTRM 116 DIVISION: 50 ALSO LISTED AS:

TERM EFFECTIVE: Fall 2017 **Inactive Course**

SHORT TITLE: ADV WASTEWATER COLLECTIONS

LONG TITLE: Advanced Wastewater Collections

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 provides an in-depth understanding of the components of wastewater collection systems and includes the design, operation, monitoring, maintenance and repair of lift pump stations as well as equipment maintenance, safety/survival systems, administration and organization principles. This course is listed as WTRM 216, effective Fall 2017. ADVISORY: WTRM 101: Introduction to Water/Wastewater Technology, WTRM 113: Beginning Wastewater Collections

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. Discuss lift station technology and how it works
Measure: reading assignment, classroom exercises
PLO:
ILO: 7,2,3,5,1

2. Explain why wastewater collection systems must be properly operated and maintained.
Measure: reading assignment, Quiz
PLO:
ILO: 7,2,3,5

3. Complete a detailed examination of what a collection operator is expected to do to keep the collection system functioning as intended.
Measure: reading assignment, Quiz
PLO:
ILO: 7,2,3,5

4. Discuss how to inspect and test newly constructed sewer mains and existing wastewater collection systems.
Measure: reading assignment, Quiz
PLO:
ILO: 7,2,3,5

5. Explain how to evaluate sewers for rehabilitation and/or repair
Measure: reading assignment, Quiz
PLO:
ILO: 7,2,3,5

6. Outline the selection and operation of equipment to resolve identified problems and minimize recurrence of problems on the collection system.
Measure:
PLO:
ILO: 7,2,3,5

7. Explain control strategies for pumps and lift stations, as well as how control equipment operates.
Measure: reading assignment, classroom exercises
PLO:
ILO: 7,2,3,5

8. Describe strategies for the administration of maintenance and operation of collection systems.
Measure: reading assignment, Quiz
PLO:
ILO: 7,2,3,5

9. Outline safety practices that are essential to minimize accidents in the field.
Measure: reading assignment, Quiz
PLO:
ILO: 7,2,3,6

CONTENT, STUDENT PERFORMANCE OBJECTIVES, OUT-OF-CLASS ASSIGNMENTS
Inactive Course: 02/27/2017
16 Hours

Content: Lift Stations

Student Performance Objectives (SPO): The student will be able to determine the location of lift stations; describe the requirements of a lift station; discuss the components of a lift station; indicate the advantages and disadvantages of different types of controllers; review lift station prints and specifications; Inspect a new lift station; keep a lift operating as intended; Determine the frequency of visits to a lift station; perform necessary lift station maintenance tasks; and prepare record forms for a lift station.

Out-of-Class Assignments: Read Chapter 8 from the Kerri Book. Quizzes will be given in class to check progress.

12 Hours

Content: Equipment Maintenance

Student Performance Objectives (SPO): The student will be able to explain the serious consequence that could occur when inexperienced, unqualified, or unauthorized persons attempt to troubleshoot or repair electrical panels, controls, circuits, and wiring; communicate with electricians by indicating possible causes of problems in electrical panels, controls, circuits, wiring, and motors; Properly select and use the following pieces of equipment, Voltage Testers, Ammeter, Megger, and Ohmmeter; Describe how a pump is put together; Maintenance and application of pumps; operate and maintain a compressor; develop and conduct an equipment lubrication program.

Out-of-Class Assignments: Read Chapter 9 from the Kerri Book. Take-home control design problem. Mid-term Exam

6 Hours

Content: Sewer Rehabilitation

Student Performance Objectives (SPO): The student will be able to evaluate the condition of a sewer; determine the need for sewer rehabilitation; Establish priorities for a sewer rehabilitation plan; identify the various rehabilitation methods; select the appropriate sewer rehabilitation method; implement and complete a rehabilitation project; notify and cooperate with the public during a rehabilitation project.

Out-of-Class Assignments: Read Chapter 10 from the Kerri Book

6 Hours

Content: Safety/Survival Programs for Collection System Operators

Student Performance Objectives (SPO): The student will be able to demonstrate awareness of hazards working in the collection system and identify potential and existing hazards; develop a safety/survival program; list the responsibilities of the different staff levels in a collection system agency that are responsible for a safety/ survival program; prepare and conduct tailgate safety sessions and monthly safety meetings; develop and implement appropriate safety/survival policies; accurately complete accident forms and properly maintain records.

Out-of-Class Assignments: Read Chapter 11 from the Kerri Book

6 Hours

Content: Administration

Student Performance Objectives (SPO): The student will be able to explain the need for effective administration; develop goals, tasks, and procedures for an operating plan; determine lease and/or capital purchases of equipment; read the various types of maps used by a collection system; keep maps up to date; prepare and maintain records essential for budgeting, scheduling, and meeting legal requirements; and organize an effective public relations program for a collections agency.

Out-of-Class Assignments: Read Chapter 12 from the Kerri Book

6 Hours

Content: Organization for System Operations and Maintenance

Student Performance Objectives (SPO): The student will be able to organize an agency to operate and maintain a wastewater collection system; staff and equip essential units within the agency; develop priority lists for job assignments for units within an agency; describe the various types of equipment maintenance

programs; list the factors that influence an equipment maintenance program; evaluate the performance of a collection system and agency.
Out-of-Class Assignments: Read Chapter 13 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:
CATEGORY 1 - The types of writing assignments required:
Percent range of total grade: 10 % to 20 %
Other: Lift station control design problem.

If this is a degree applicable course, but substantial writing assignments are NOT appropriate, indicate reason:
Course primarily involves skill demonstration or problem solving
CATEGORY 2 - The problem-solving assignments required:
Percent range of total grade: 30 % to 50 %
Homework Problems
Quizzes

CATEGORY 3 - The types of skill demonstrations required:
Percent range of total grade: % to %
CATEGORY 4 - The types of objective examinations used in the course:
Percent range of total grade: 40 % to 60 %
Multiple Choice
Other: Math Show-work
CATEGORY 5 - Any other methods of evaluation:
Attendance

Percent range of total grade: 0 % to 20 %

REPRESENTATIVE TEXTBOOKS:
Required:
Kenneth D. Kerri, Operation and Maintenance of Wastewater Collection Systems Vol. II, CSU- Sacramento, 1998, or other appropriate college level text. This text represents an industry standard text.
ISBN: 1-884701-18-3
Reading level of text, Grade: 11 Verified by: Dana Young

ARTICULATION and CERTIFICATE INFORMATION
Associate Degree:

CSU GE:
IGETC:
CSU TRANSFER:
Transferable CSU, effective 201270
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: 116
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: CCC000530893
Sports/Physical Education Course: N
Taxonomy of Program: 095800