

I. COURSE DESCRIPTION:

The objective of this course is to develop the knowledge and skills to effectively operate and maintain wastewater collection systems. The main topics include: components and types of wastewater collection systems, system hydraulics, safety, inspections, cleaning methods and lift stations.

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

Upon successful completion of this course, the student will demonstrate the ability to:

1. Explain the responsibilities of collection system operators.

Potential Elements of the Performance:

- Identify the role of collection system operators in ensuring the proper treatment of wastewater
- Explain the legal responsibilities applicable to wastewater collection operators
- List the training requirements determined by current regulations
-

2. Identify and explain the types and purpose of collection systems.

Potential Elements of the Performance:

- Define what is a wastewater collection system
- Identify the common wastewater collection types
- Identify common components of collection systems
- Distinguish between storm and sanitary system design

3. Describe correct design and operating procedures

Potential Elements of the Performance:

- Identify causes of abnormal conditions using proper troubleshooting techniques
- Explain interaction with other processes and the total treatment process
- Identify considerations which are applicable to collection system design
- Explain the purpose, construction and operation of lift stations

4. Determine and demonstrate safe work procedures

Potential Elements of the Performance:

- List correct procedures relating to traffic safety
- List correct procedures relating to maintenance access points
- Describe and demonstrate correct use of personal safety equipment
- Apply procedures required in confined space entry
- List factors related to electrical safety

5. Explain concepts and procedures to inspect and test collection systems

Potential Elements of the Performance:

- List reasons for inspecting and testing systems
- Describe correct procedures for inspection of maintenance access points
- Discuss the role and application of closed-circuit television inspection
- Describe the purpose of and procedures in smoke and dye testing
- Describe the purpose of and procedures in pipeline testing

6. Describe operation and maintenance procedures

Potential Elements of the Performance:

- Identify types and causes of sewer stoppages
- Select proper methods to clear stoppages and clean sewers
- Determine equipment and personnel requirements for various cleaning scenarios
- Set up and operate cleaning equipment safely according to accepted practice
- Record essential data related to the clearing and cleaning process
- Describe a preventative maintenance program

III. TOPICS:

1. Operators role and responsibilities
2. Purpose of collections systems
3. Design considerations
4. Collection system safety

WASTEWATER COLLECTION
SYSTEMS

WTR232

5. Inspection and testing
6. Operation and maintenance

IV. RECOMMENDED RESOURCES/TEXTS/MATERIALS:

Basic Environmental Technology, Nathanson, Fourth edition

Operation and Maintenance of Wastewater Collection Systems, Volume 1
California State University, Sacramento, Department of Civil Engineering
Office of Water Programs

V. EVALUATION PROCESS/GRADING SYSTEM:

Quizzes and assignments	30 %
Midterm test	35 %
Final test	<u>35 %</u>
Total	100%

The following semester grades will be assigned to students in postsecondary courses:

Grade	Definition	Grade Point Equivalent
A+	90 – 100%	
A	80 – 89%	4.00
B	70 - 79%	3.00
C	60 - 69%	2.00
D	50 – 59%	1.00
F (Fail)	49% and below	0.00
CR (Credit)	Credit for diploma requirements has been awarded.	
S	Satisfactory achievement in field /clinical placement or non-graded subject area.	
U	Unsatisfactory achievement in field/clinical placement or non-graded subject area.	
X	A temporary grade limited to situations with extenuating circumstances giving a student additional time to complete the requirements for a course.	
NR	Grade not reported to Registrar's office.	

W Student has withdrawn from the course without academic penalty.

VI. SPECIAL NOTES:

Special Needs:

If you are a student with special needs (e.g. physical limitations, visual impairments, hearing impairments, or learning disabilities), you are encouraged to discuss required accommodations with your instructor and/or the Special Needs office. Visit Room E1101 or call Extension 2703 so that support services can be arranged for you.

Retention of course outlines:

It is the responsibility of the student to retain all course outlines for possible future use in acquiring advanced standing at other postsecondary institutions.

Communication:

The College considers **WebCT/LMS** as the primary channel of communication for each course. Regularly checking this software platform is critical as it will keep you directly connected with faculty and current course information. Success in this course may be directly related to your willingness to take advantage of the **Learning Management System** communication tool.

Course outline amendments:

The Professor reserves the right to change the information contained in this course outline depending on the needs of the learner and the availability of resources.

Substitute course information is available in the Registrar's office.

VII. PRIOR LEARNING ASSESSMENT:

Students who wish to apply for advanced credit in the course should consult the professor. Credit for prior learning will be given upon successful completion of a challenge exam or portfolio.

VIII. DIRECT CREDIT TRANSFERS:

Students who wish to apply for direct credit transfer (advanced standing) should obtain a direct credit transfer form from the Dean's secretary. Students will be required to provide a transcript and course outline related to the course in question.