

Course Outline

COURSE: WTRM 108 **DIVISION:** 50 **ALSO LISTED AS:**

TERM EFFECTIVE: Fall 2018 **Inactive Course**

SHORT TITLE: WATER DISTRIBUTION 2

LONG TITLE: Water Distribution 2

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:

Designed as the second part of an integrated sequence of two courses covering water distribution systems. Enables students to gain a more comprehensive understanding of the operation and maintenance of waterworks distribution system, including advanced calculations, management, safety and emergency response issues. Contemporary issues facing the water and wastewater industry are also explored in depth. This course is part of a series required for eligibility to take the State certification examinations; supports certification examinations for CDPH grade levels D3, D4 and D5. This course is now listed as WTRM 208. **ADVISORY:** WTRN 105 Water Distribution 1; 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. Solve advanced mathematical calculations and conversions.

Measure of assessment: Graded homework assignments

Year assessed, or planned year of assessment: Fall 2017

2. Identify and discuss the components of a water distribution system.

Measure of assessment: exam

Year assessed, or planned year of assessment: Fall 2017

3. Describe water quality requirements and regulations as they apply to water distribution.

Measure of assessment: exam

Year assessed, or planned year of assessment: Fall 2017

4. Explain the appropriate administrative applications and record-keeping requirements.

Measure of assessment: exam

Year assessed, or planned year of assessment: Fall 2017

5. Define the level and type of disinfection necessary during maintenance and repairs of distribution facilities.

Measure of assessment: exam

Year assessed, or planned year of assessment: Fall 2017

6. Calculate system pressures at various points within a distribution system and other hydraulic measures.

Measure of assessment: Graded homework assignments

Year assessed, or planned year of assessment: Fall 2017

7. Classify the various types of meters used in water distribution and explain the advantages of each.

Measure of assessment: exam

Year assessed, or planned year of assessment: Fall 2017

8. Illustrate the safety precautions and procedures related to water distribution.

Measure of assessment: exam

Year assessed, or planned year of assessment: Fall 2017

9. Describe the different forms of backflow prevention and explain the need for backflow prevention.

Measure of assessment: exam

Year assessed, or planned year of assessment: Fall 2017

10. Describe the parts and operation of a water well, pumps and motors.

Measure of assessment: 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: Overview of Course objectives - Review of Distribution concepts.

Student Performance Objectives (SPO): Discuss the principles of distribution construction.

Out-of-Class Assignments: Read Chapter 1 Kerri manual. Review study questions.

15 Hours

Content: Distribution Advanced Mathematics including area, volume, flow, dosage, solutions, HP, KW power calculations, temperature, pressure gradients, "C" factor, detention times.

Student Performance Objectives (SPO): Mathematically construct different water math problems applied directly to water distribution principles

Out-of-Class Assignments: Take Home problem sets for each area

5 Hours

Content: Describe distribution Components and Appurtenances including valves, hydrants, pipelines, air release valves, tanks, reservoirs and standpipes.

Student Performance Objectives (SPO): Discuss Distribution components and appurtenances.

Out-of-Class Assignments: Read Chapter 3 Kerri manual. Review study questions.

6 Hours

Content: Disinfection

Student Performance Objectives (SPO): Describe chlorination techniques and associated equipment, as well as chlorine regulation requirements.

Out-of-Class Assignments: Read Chapter 6 Kerri manual. Review study questions

6 Hours

Content: Wells , Pumps, and Motors including types and designs, pump curves and specifications, and repair and maintenance.

Student Performance Objectives (SPO): Discuss pumps and the relevant water distribution issues, including cost and operation.

Out-of-Class Assignments: Read Chapter 5 Kerri Manual. Review study questions.

3 Hours

Content: Safety - confined space entry, trench safety, MSDS, traffic control, OSHA regulations, and lock out/tagout procedures.

Student Performance Objectives (SPO): Discuss and design traffic controls, trench shoring, and related safety regulations in a construction and operations environment.

Out-of-Class Assignments: Read Chapter 7 Kerri manual. Review Study questions

6 Hours

Content: Water Quality including examination of water regulations applicable to a Water Distribution System

Student Performance Objectives (SPO): Outline the physical, chemical, biological and radioactive influences on water.

Out-of-Class Assignments: Read Chapter 4 Kerri manual. Review Study Questions

3 Hours

Content: Distribution system hydraulics including backflow devices, water hammer, cavitation issues, and surge tanks.

Student Performance Objectives (SPO):

Out-of-Class Assignments:

3 Hours

Content: Administration including management issues, record-keeping, and reporting requirements

Student Performance Objectives (SPO): Explain the types of records, legal reporting requirements for a public agency vs. an investor owned utility.

Out-of-Class Assignments: Read Chapter 8 Kerri manual. Review Study questions.

2 Hours

Final

METHODS OF INSTRUCTION:

Lecture

METHODS OF EVALUATION:

Writing assignments

Percent of total grade: 35.00 %

Percent range of total grade: 35 % to 65 % Written Homework
Problem-solving assignments
Percent of total grade: 10.00 %
Percent range of total grade: 10 % to 20 % Quizzes
Skill demonstrations
Percent of total grade: 0.00 %
Objective examinations
Percent of total grade: 40.00 %

REPRESENTATIVE TEXTBOOKS:

Required Representative Textbooks

Kenneth D. Kerri. Water Distribution System Operation and Maintenance 6th Edition, or other appropriate college level text.. California State University, Sacramento: University Enterprises, Inc.,2012.

ISBN: 978-1-59371-061-3

Reading Level of Text, Grade: 12th 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: 108

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: CCC000529234

Sports/Physical Education Course: N

Taxonomy of Program: 095800

