

Umpqua Community College

WQT 260

Water Treatment

Course Outline

COURSE DESCRIPTION

Covers the fundamentals of water treatment facilities, including operation and maintenance of facilities. Prepares students for Water Treatment Operator Level I State examination.

COURSE OUTCOMES

Students who successfully complete this course will:

- 1) Describe management, operation, and maintenance of water treatment systems including source waters, water intakes, treatment processes, and treated water retention.
- 2) Explain the regulatory basis for mandated treatment methods and the regulatory bodies responsible for enforcement.
- 3) Evaluate process performance based on available laboratory data, field observations, and process control mathematical calculations.
- 4) Describe causes of abnormal operating conditions and necessary remedial actions.

COURSE TEXTBOOK

“Water Treatment Plant Operation, A Field Study Training Program”, Volume I, 7th Edition, 2017, by California State University, Sacramento, ISBN 978-1-323-78665-9

SCHEDULE OF ASSIGNMENTS

Week	Topic and Reading	Assessment
1	Topic: Water Treatment Plant Operator and Water Sources and Treatment Text Reading: Chapter 1 and 2 Math: Area, Volume, Density	Homework Discussion Quiz
2	Topic: Reservoirs and Intakes Text Reading: Chapter 2 Math: Detention Time, Pounds Formula, Algae Control	Homework Discussion Quiz
3	Topic: Coagulation and Flocculation Text Reading: Chapter 3 Math: Feeding Chemicals, Solution Preparation	Homework Discussion Quiz
4	Topic: Sedimentation Text Reading: Chapter 4 Math: Detention Time, Surface Loading, Weir Loading, Flow Water Treatment Facility Tour Assigned	Homework Discussion
5	Topic: Filtration Text Reading: Chapter 5 Math: Filtration, Pressure	Homework Discussion Quiz

6	Topic: Disinfection Text Reading: Chapter 6 Math: Disinfection	Homework Discussion Quiz Midterm Due
7	Topic: Corrosion Control Text Reading: Chapter 7 Math: Work, Horsepower, Corrosion Control	Homework Discussion Quiz
8	Topic: Taste and Odor Text Reading: Chapter 8 Math: Chemical Dosing – Taste and Odor	Homework Discussion Quiz
9	Topic: Laboratory Text Reading: Chapter 9 Water Treatment Facility Tour Paper Due	Homework Tour Paper
10	Topic: Plant Operation Math: Water Rates-Budgeting, Energy Conservation	Homework Discussion
11	Final Exam	