

COURSE OUTLINE**Environment Technology 120
Water Treatment Operation and Maintenance I****I. Catalog Statement**

Environmental Technology 120 provides an entry level understanding of drinking water treatment. Topics covered include history of water treatment, responsibilities of the plant operator, reasons for treating water, source water management, water treatment facilities, treatment process and technologies, disinfection and plant maintenance. This course provides the background into the importance of treating water, its functionality, past and present technology and the future of drinking water.

Units – 3.0

Lecture Hours – 3.0

Prerequisite: None.

II. Course Entry Expectations

Skill Level Ranges: Reading 5; Writing 5; Listening/Speaking 5; Math 3.

III. Course Exit Standards

Upon successful completion of the required coursework, the student will be able to:

1. identify the history of drinking water treatment, the responsibilities of an operator and the importance of protection of water supplies and public health;
2. describe different types of water treatment processes, pre-filtration and filtration technologies, and the need and types of disinfection;
3. assess the maintenance needs of a treatment plant and safety issues of drinking water treatment;
4. apply math calculations and conversions to water treatment and operations.

IV. Course Content**TOTAL CONTACT HOURS = 48**

A.	History of Drinking Water and Roles of Treatment Plant Operator	6 hours
B.	Why is Water Treated	6 hours
C.	Water Treatment Facilities	9 hours
D.	Surface Water Treatment	3 hours
E.	Sedimentation and Clarification	3 hours
F.	Filtration	9 hours
G.	Backwash Water Waste Management	3 hours

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| H. | Disinfection of Waste | 6 hours |
| I. | Pumps, Valves, Controls, and Instrumentation | 3 hours |

V. Methods of Presentation

The following instructional methodologies may be used in the course:

1. lecture/discussion;
2. multimedia presentations;
3. demonstration;
4. field trips.

VI. Assignments and Methods of Evaluation

1. Midterm examination.
2. Final examination.
3. Manipulation Skills Evaluation.

VII. Textbook

Office of Water Programs. *Water Treatment Plant Operation, Volume I*. Current Edition.
Sacramento: CSUS Foundation, Office of Water Programs, 2008.
10th Grade Textbook Reading Level ISBN: 9781593710408

Office of Water Programs. *Water Treatment Plant Operation, Volume II*. Current Edition.
Sacramento: CSUS Foundation, Office of Water Programs, 2006.
10th Grade Textbook Reading Level ISBN: 9781593710361

VIII. Student Learning Outcomes

1. Students will identify the history of drinking water treatment, the responsibilities of an operator and the importance of protection of water supplies and public health.
2. Students will explain the different types of water treatment processes, pre-filtration and filtration technologies, and the concepts used for various types of disinfection.
3. Students will assess the maintenance needs of a typical treatment plant and safety issues of drinking water treatment.
4. Students will apply math calculations and conversions to water treatment and operations.