

# **703E WATER DISTRIBUTION SYSTEM: MANAGEMENT**

**Office of Water Programs**  
**California State University, Sacramento**  
(1.8 Continuing Education Units)

## **COURSE DESCRIPTION**

Upon completion of this course, operators should be able to perform the following administration functions: emergency planning, construct an organizational chart, write a job description and interview questions, and conduct employee evaluations. Through this course, operators will learn how to provide equal and fair treatment to all employees, conduct effective communication within the organization, assess and plan for financial strength of the distribution system, set up a safety program, and maintain effective distribution system record management.

## **COURSE OUTLINE**

### **703E Water Distribution System: Management**

The course uses Chapter 7 and selected appendix sections from OWP's *Water Distribution System Operation and Maintenance* course book.

#### **Chapter 7 – Management**

1. Describe the functions and duties of a manager and understand authority, responsibility, delegation, and accountability.
2. Handle personnel tasks and issues so that all job applicants and employees are treated equally, fairly, and professionally during the employee selection process, employee evaluations, and disciplinary meetings.
3. Communicate effectively about operations, financial status, and other aspects of your utility within the organization, with media representatives, and with the community. Use written and oral reports, organizational charts identifying lines of authority and responsibility, and calculations such as operating ratio, coverage ratio, and simple payback.
4. Prepare long-term and short-term plans, emergency plans (including contingency plans), security plans, safety programs, and water and energy conservation programs (including best management practices) for your utility.
5. Collect, organize, use, and dispose of plant records.

## TIME ASSIGNMENT

**Text Pages:** The course uses Chapter 8 and selected appendix sections from *Water Distribution System Operation and Maintenance* (79 pages). The average word count on a page from the training manual is 950 words. Some pages contain tables, graphs, or illustrations to enhance the presentation of information. It is assumed that readers spend equal time studying tables, graphs, and illustrations as they would spend reading the equivalent amount of text. Therefore, each page is assumed to contain the equivalent of 950 words. Accepted average adult reading speed is 200 – 250 words per minute. Therefore, each page is projected to require four minutes of student time for each reading.

**Web screens (local):** The course web pages function as the “instructor” for the course. The pages contain topic introduction and description material and they provide instructions for reading assignments, links to supporting web pages, interactive student exercises, video clips, quizzes, glossaries, and the final exam. In this analysis, local web pages are distinguished from supporting (or linked) web pages for accounting purposes only. Students will utilize local and linked web pages seamlessly as they progress through the course.

Local web screens consist of the home page (1), course instruction and help pages (8), content pages (75), student tools pages (5), glossary pages (25), quiz pages (1), and the final exam page (1).

**Web screens (linked):** Linked web resources are an integral part of the course and students are expected to utilize these linked resources extensively as part of their training. Examples of linked resources are the websites for the U. S. EPA Public Drinking Water Systems Programs, the American Backflow Prevention Association, and selected pipe associations (Ductile Iron, American Concrete, and Uni-Bell PVC). Each of these sites contains many internal and external links that lead to a plethora of resource information. To be conservative in the count of linked web screens, only the web pages directly linked from the course content pages and the first level linked pages from those directly linked pages will be counted. Subsequent linked pages will not be counted although it is expected that many students will explore and study the information contained on those subsequent links. The projected average amount of time spent per web page is one minute. The total number of linked pages in the course is 200.

**Interactive exercises:** The interactive math exercises in this course generate a new problem every time they are opened. Therefore, each interactive math exercise can present an unlimited number of unique problems. For conservative quantification purposes, it will be assumed that each interactive math exercise will be called three times each during a course. The non-math interactive exercises are projected to be accessed once per course. Each interactive exercise is projected to take two minutes time. There are five interactive exercises in the course. Two (2) of those interactive exercises are math type, which, if called upon to generate three unique problems each, create six (6) interactive exercises. The total number of interactive exercises is nine (9).

**Review questions:** The course contains 92 interactive review questions. Each review question requires a written response consisting one or more sentences. Projected average review question time is two minutes per question.

**Discussion questions:** The course contains 38 discussion questions. Each discussion question requires a written response consisting one or more sentences. Projected average discussion question time is two minutes per question.

**Objective test questions:** The course contains 60 objective test questions. Projected average question time is one minute per question.

**Video:** The course contains 14 minutes of video. Projected viewings: 2 one.

**Final exam:** The final exam consists of 75 questions. Projected average exam question time is one minute per question.

| <b>Component</b>         | <b>Minutes per<br/>Component<br/>Unit</b> | <b>Number of<br/>Component<br/>Units</b> | <b>Time to<br/>Complete<br/>Units</b> |
|--------------------------|---|--|---------------------------------------|
| Text pages               | 4   | 79                                       | 316                                   |
| Web screens (local)      | 1   | 117                                      | 117                                   |
| Web screens (linked)     | 1   | 200                                      | 200                                   |
| Interactive exercises    | 2   | 9  | 18                                    |
| Math problems            | 3   | 0  | 0                                     |
| Review questions         | 2   | 92                                       | 184                                   |
| Discussion questions     | 2   | 38                                       | 76                                    |
| Objective test questions | 1   | 60                                       | 60                                    |
| Video (minutes)          | 1   | 14                                       | 14                                    |
| Exam questions           | 1   | 82                                       | 82                                    |
| <b>Total (minutes)</b>   |   |  | <b>1067</b>                           |
| <b>Total (hours)</b>     |   |  | <b>17.8</b>                           |