

Office of Water Programs Online Course Time Assignment

This course time assignment outlines the components of an online distance learning training course offered by OWP for continuing education units (CEUs) or contact hours.

Title of course: Water Distribution: 703C, Disinfection

Related training material title: “Water Distribution Operation and Maintenance,” Seventh Edition

CEUs/Contact hours: 1.8 CEUs/18 contact hours

Course Outline: 703C Disinfection

Water as a Limited Resource	Points of Chlorine Application
The Water Supply System	Operation of Chlorination Equipment
Water Quality Standards	Maintenance of Chlorination Equipment
Water Quality in Distribution Systems	Measuring Chlorine Residual
Contaminants and Their Sources	Chlorine Safety Program
Protecting Water Quality Through O&M	Chlorination Math
Distribution System Operators	Disinfection Process
Drinking Water Safety	Math Assignment
Factors Influencing Disinfection	Additional Resources

Number of digital manual pages: 142

Average word count: 520 words per screen

Average reading speed: 130 words per minute; 4 minutes per screen

These pages are digital versions of the training manual. The course is based on Chapters 1 and 5, “Introduction to Water Distribution” and “Disinfection,” and other sections from the related training manual. The course contains text, tables, graphs, illustrations, math example problems, and chapter review questions to enhance the presentation of information and the student learning experience. The course is designed for students to spend the same amount of time reading the tables, graphs, and illustrations as they spend reading the equivalent amount of related course text presented on screen.

Number of Moodle screens (internal): The course contains 39 Moodle learning management system screens.

Moodle screens consist of 1 home screen, 1 course instruction and help screen, 26 content screens, 5 glossary screens, 5 quiz screens, and 1 final exam screen.

Average reading speed: 1 minute per screen

The Moodle screens function as the instructor for the course, providing topic introduction, reading assignments, links to external web page resources, interactive student exercises, video clips, quizzes, a glossary, and a final exam. In this time assignment analysis, Moodle screens are distinguished from web page resource links for quantification purposes only. Students use internal Moodle screens and external web page resource links seamlessly as they progress through the course.

Number of web page resource links (external): The course contains 100 web page resource links that students use extensively as an integral part of their training course. Examples of websites include the US EPA Public Drinking Water Systems Programs, the Groundwater Foundation, and the Nebraska Health and Human Services System. Each site contains a large number of internal and external web links that provide additional resources for students.

Average reading time per web page resource link: 1 minute per link

Number of Interactive exercises: The course contains a total of 27 exercises, including 0 general course content interactive exercises and 9 interactive math exercises. Each interactive math exercise can present an unlimited number of unique problems so students can attempt each exercise multiple times. For the purpose of this time assignment, it is assumed that students will attempt each of the 9 interactive math exercises three times, counting as 27 math exercises.

Average interactive exercise answer speed: 2 minutes per interactive exercise

Number of math example exercises: The course contains 50 water distribution system in-text math example exercises that support and expand the concepts presented in the online course text.

Average math example exercise answer speed: 3 minutes per math exercise

Number of chapter review questions: The course contains 50 review questions in the Check Your Understanding section at the end of each topic. Question types include fill-in and multiple choice.

Average chapter review question/answer speed: 2 minutes per question

Number of minutes of video: The course contains 7 minutes of video. Students are projected to watch each video twice.

Average video viewing time: 14 minutes

Final exam: The course contains 82 final exam questions. Question types include true/false; best answer (one correct answer); multiple choice (one or more correct answers); and math (requiring students to work through equations to find solutions).

Average final exam question/answer speed: 2 minutes per final exam question

The table summarizes the course components outlined above and shows the calculations for the total time assignment values in minutes and hours.

Course component	Number of component units	Minutes required to complete component unit	Total time assignment for component
Text pages	142 ×	4 =	568
Web screens (internal)	39 ×	1 =	39
Web screens (external)	100 ×	1 =	100
Interactive exercises	27 ×	2 =	54
Math example exercises	50 ×	3 =	150
Chapter review questions	50 ×	2 =	100
Videos (minutes)	7 ×	2 =	14
Final exam questions	82 ×	2 =	164
			1,189 minutes
			19 hours