Course Description Sheet

COURSE TITLE
Filtration Basics

COURSE DURATION
1 Hour

OVERVIEW
Water quality varies from location to location, and the definition of potable water can vary with locality. Most water treatment facilities use filtration as an important step in their water treatment processes, and some smaller municipalities might use a slow sand filtration as their only treatment method. This course will examine the treatment of water via filtration: what is filtered out of the water we drink, what are the different types of filters available, and how do those filtration methods work? We will also survey the regulatory requirements for potable water as set forth by the EPA, examine some of the most common pollutants, and look at a few case studies regarding specific filtration problems and the unusual solutions that have sometimes been reached.

PREREQUISITES
No prior knowledge is required.

BEHAVIORAL OBJECTIVES
After successfully completing this course, you will be able to:

- Identify the most important goal of the water treatment industry
- Know about what filtration can and cannot accomplish
- Explain the basic operating principles of filtration
- Know the different types of materials that are removed by filtration
- Compare filtration methods found in nature and water treatment plants
- Distinguish between media and membrane filtration
- List the common steps of water treatment that includes filtration
- Understand the rules and regulations that water treatment plants must comply with – and know where to find them

COURSE OUTLINE

Chapter	Minutes
Introduction	3
Why Do We Filter Water?	7
Turbidity	5
EPA and State Standards	7
What Do We Filter?	4
How Do We Filter Water?	5
Coarse Bar and Screen Filtration	2
Fine Disc and Screen Filtration	1
Gravity Filtration	2

Pressurized Media Filtration	1
Total Dissolved Solids	1
Slow Sand Media Filtration	4
Rapid Sand and High-Rate Filters	9
Membrane Filtration	6
Cartridge Filtration	2
Conclusion	1
Course Total	**60**

AVAILABILITY
This course is offered online and is available 24 hours a day, 7 days a week, 365 days a year.

TRAINING METHODOLOGY & EVALUATION
This course is self-paced online training. Review exercises reinforce the content, and students are evaluated with a multiple-choice exam. Upon completion, students are prompted to submit a course evaluation.

REFERENCES
Water System Design Manual, Washington State Department of Health, DOH Publication 331-123, Revised June 2020

Water Systems Planning Guidebook, Washington State Department of Health, DOH Publication 331-068, Revised August 2020

Water Treatment Plant Operation, Office of Water Programs California State University and USEPA,

USEPA, Drinking Water Requirements for States and Public Water Systems, November 2021

USEPA, Drinking Water Rules – including Safe Drinking Water Act (and amendments); Surface Water Treatment Rules (and Enhancements and Revisions); Revised Total Coliform Rules, and Disinfection By-Product Rules. (Link: Drinking Water Regulations | US EPA)

Water Quality in Distribution Systems, American Water Works Association, Manual of Water Supply Practices, M68, 2017

Water Treatment, American Water Works Association, 2016 Revisions

Great Lakes, Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers. 2012 Ten State Standards, - Recommended Standards for Water Works.