



Reverse Osmosis Webinar Description

Reverse osmosis (RO) and membrane-based treatment systems have become essential tools in both drinking water and wastewater applications, especially where high levels of dissolved solids, hardness, metals, and trace organic contaminants must be removed to meet increasingly strict regulatory and reuse standards. As these systems become more common, they also become more complex to operate, maintain, and troubleshoot.

This course provides a practical, operator-focused understanding of membrane treatment starting with the fundamentals of membrane separation and how it differs from conventional filtration. Participants will explore microfiltration, ultrafiltration, nanofiltration, and reverse osmosis, with emphasis on how each process works, where each is best applied, and what materials and configurations are commonly used in real-world systems.

A significant portion of the course is devoted to understanding and managing membrane fouling, one of the most persistent operational challenges in RO systems. Participants will learn how to identify different types of fouling—including biological, scaling, and organic fouling—and how targeted cleaning strategies (acid, alkaline, and non-oxidizing biocides) can restore performance and extend membrane life.

The course also covers RO system design and operation, including pressure relationships, dissolved solids behavior, flux concepts, staging, and system configuration. Special attention is given to concentrate management, including the operational reality that only a portion of feed water becomes usable permeate while the remaining concentrate contains significantly elevated dissolved solids and must be handled appropriately.

By the end of the session, participants will be able to interpret key operating data, recognize early warning signs of membrane failure, and apply practical troubleshooting approaches to issues such as pressure increases, ion breakthrough, and declining permeate quality.