R.O. & Ion Exchange Webinar Description

Reverse osmosis (RO) and ion exchange are two of the most powerful and widely used technologies for removing dissolved contaminants, softening water, and enabling water reuse. However, each system operates on fundamentally different principles, with distinct advantages, limitations, and operational challenges.

This course provides a practical, side-by-side understanding of membrane processes and ion exchange systems, helping participants determine when and how each should be applied. The training begins with the fundamentals of membrane separation, including microfiltration, ultrafiltration, nanofiltration, and reverse osmosis, with emphasis on fouling mechanisms, system design, and troubleshooting.

Participants will learn how RO systems function, including pressure relationships, flux, recovery, and staging, along with how to diagnose performance issues such as scaling, fouling, and membrane degradation. Ion exchange processes are covered in equal depth, including cation and anion exchange, softening, regeneration chemistry, and common operational problems.

The course also addresses the real-world tradeoffs between these technologies—such as waste stream management, chemical usage, and environmental impact—so participants can make informed decisions based on their specific application. Activated carbon is included as a complementary technology, with discussion of its role in pretreatment and contaminant removal.

Drawing on extensive field experience, this course emphasizes practical operation, troubleshooting, and optimization strategies that can be immediately applied to improve system performance, extend equipment life, and manage costs effectively..