

Nanofiltration and Reverse Osmosis in Water Treatment



Start Date:	Course Length:	Estimated Effort:	Fee:
Feb 16, 2022	7 Weeks	4 - 5 hrs p/week	€ 595

Are you interested in the fascinating world of membrane technology in drinking water production and industrial water treatment?

As a result of the growing importance of reverse osmosis, which offers the lowest energy consumption compared to other desalination techniques and is increasingly being used in many water-related organizations, water management experts at TU Delft have developed a 100% online course aimed at working professionals who want to increase their knowledge of these technologies and their applications.

In this course you will gain hands-on experience on water treatment with reverse osmosis. **By the end of the course, after you have learnt how to design your own reverse osmosis unit, you will be able to better operate your own installations, and make better decisions about investment and maintenance.**

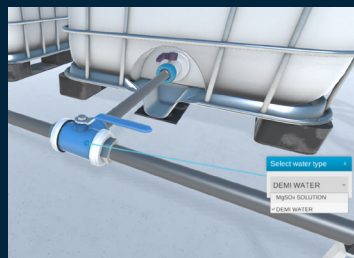
The course will cover a diverse range of issues about the application of this technology, from the pre-treatment needed before reverse osmosis can be applied, to the removal of micro pollutants and pathogens in the production of freshwater or water for industry.

By the end of this course, you will be able to:

- Calculate the mass balances, recovery, rejection, pressure and water quality in a reverse osmosis (RO) installation
- Recognize and classify different types of membranes
- Describe the rejection mechanism of ions and organic compounds in the membrane system
- Analyze the advantages and disadvantages of the application of RO
- Explain different application of RO membranes (seawater, brackish water and freshwater)
- Identify different water flows and their routing in a membrane module
- Explain the particulate and biological fouling in the membrane
- Understand the concentration polarization mechanism and scaling problem
- Calculate an RO unit and design a treatment plant including the RO unit as the heart (seawater, brackish or freshwater)

Virtual 3D Lab

You will have access to our **online virtual 3D lab** to observe how a small reverse osmosis unit operates. In this virtual lab, besides gaining immediate experience with a small reverse osmosis installation, you will be able to perform calculations and draw conclusions about concentration polarization.



Video Excursions

The course includes several video excursions to functioning reverse osmosis installations. Through these you will experience the operation of a **seawater installation**, a **brackish water installation** and an **industrial water treatment plant**.

Certificate

If you successfully complete this course you will earn a professional education certificate and you are eligible to receive 3.0 Continuing Education Units (CEUs). This course is accredited by CIWEM.

Enroll now!