

## **MEMBRANE TECHNOLOGY, PROCESS AND SYSTEM DESIGN**

**Online intensive course**

**September 21–23 and 28–30, 2020**

**Lecture hours 7–10 am PST (California) 3.00-6.00 pm (UK)**

**Lecturer Mark Wilf, Ph.D.**



The course aims to deliver practical information on the development of treatment process of membrane filtration and RO desalination systems, evaluation of process economics, membrane systems design, operation and maintenance. The course is directed toward engineers and water treatment professionals involved with process development and design and operation of membrane plants to enhance their level of technical expertise. Water professionals, who evaluate feasibility and economics of future water treatment projects will also find relevant subjects in the course material.

The course topics include practical information about performance and operating conditions of reverse osmosis and nanofiltration technology for brackish and seawater desalination and wastewater reclamation. The program includes introduction to membrane technology, description of commercial membrane elements, illustration of the membrane system design process and overview of systems operation.

Calculations of the investment and operating cost of membrane plants, based on design cases will be illustrated. A section of the course is dedicated to the modern microfiltration and ultrafiltration technology applied for treatment of potable water and as a pretreatment of feed water for RO systems. An overview of commercial MF and UF membrane products will be provided together with information on equipment sizing and estimation of chemicals usage. It will be followed by a description of the project implementation process in large membrane treatment plants. Course material also includes introductory information on process and equipment applied in membrane bioreactor (MBR) systems.

The seminar is structured in the form of six, three hours daily sessions, conducted over a period of ten days of live, on line presentation combined with hands-on exercises of calculations of membrane plant operating parameters and evaluation of process economics. It is expected that knowledge gained during the course will enable participants to conduct critical evaluation of feasibility and design parameters of water treatment and wastewater reclamation projects based on membrane technology and estimation of capital and operating cost of membrane systems.

**It will be possible to interact with Dr. Wilf with questions and discussions.**