



PROCESS AND CHEMICAL ENGINEERING

Desalination Plant Operation and Optimisation

5 day course

Classroom, online or in-house

Course overview

Desalination turns energy into water at a cost that depends almost entirely on how well the plant is operated and how well the membranes or tubes are protected. This course covers both technologies. Delegates work through thermal processes including multi stage flash and multi effect distillation, and reverse osmosis including membrane behaviour, and the pretreatment that determines membrane life. Heat balance, performance ratio and specific energy consumption are calculated rather than described. Scaling, fouling and biofouling are covered as the failure mechanisms that dominate operating cost, along with cleaning regimes. The course closes on start up, shutdown and optimisation against energy price.

What you will learn

- Compare thermal and membrane desalination and their applications
- Operate multi stage flash and multi effect distillation plant
- Operate reverse osmosis plant and interpret membrane performance
- Design and run pretreatment that protects membrane life
- Calculate heat balance, performance ratio and specific energy consumption
- Control scaling, fouling and biofouling, and plan cleaning
- Optimise operation against energy price and water demand

Who should attend

- Desalination plant operators and engineers
- Utilities and water treatment engineers
- Process engineers in coastal industry
- Maintenance staff on desalination plant
- Municipal and industrial water managers

Course outline

- 01 Thermal against membrane desalination
- 02 Multi stage flash and multi effect distillation
- 03 Reverse osmosis and membrane behaviour
- 04 Pretreatment and membrane life
- 05 Heat balance and performance ratio
- 06 Specific energy consumption
- 07 Scaling, fouling, biofouling and cleaning
- 08 Start up, shutdown and optimisation

Upcoming dates

Dates	Venue	Format	Fee per delegate
28 September to 2 October 2026	Pretoria, South Africa	Classroom	R19,950
12 to 16 October 2026	Online	Online	R8,500
26 to 30 October 2026	Kigali, Rwanda	Classroom	USD 1,325
16 to 20 November 2026	Kampala, Uganda	Classroom	USD 1,325



Fees and how to register

This 5 day course is **R8,500** per delegate online, **R19,950** in the classroom in South Africa, Botswana, Namibia, Lesotho and Eswatini, and **USD 1,325** in the classroom elsewhere in Africa. In-house training is quotation on request. Book 2 or more delegates on this course and save 10%.

To register or request an in-house proposal, visit www.afrisciencegroup.com, email info@afri-science.co.za, or WhatsApp us on **+27 63 479 1136**.

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