

Utilities System Overview: Technologies, Water quality and chemistry

Learning objectives

The objective of this course is to provide a general overview of the utility systems being applied at the Sasol South Africa Operations and to contextualise the application of the various water treatment technologies, water quality and treatment programmes, with relevant case studies.

The intent is not to provide comprehensive, in-depth or specialist training, but rather to equip the attendees with basic theory and fundamentals combined with practical knowledge and guidance to equip the Sasol process engineers with the required knowledge and skills to effectively support, troubleshoot and optimise these water treatment process units.



Learning content

1. Overview of water value chains: Sasol SA Operations
 - Sasolburg Ekandustria operations
 - Secunda operations
2. Raw water treatment, desalination and de-mineralisation
 - Water chemistry basics
 - Pre-treatment
 - Coagulation, flocculation and softening
 - Clarification and filtration

- De-mineralisation (RO) and deionization (IX)
 - Brine management
 - Specific case studies
3. Boilers, steam and condensation systems
- General overview
 - Boiler feedwater pre-treatment / condensate polishing
 - Boiler feedwater quality guidelines
 - Fouling, scaling and corrosion control
 - Specific case studies
4. Biological effluent treatment
- Water chemistry basics
 - Basic design and operating philosophies
 - Fouling, scaling and corrosion control
 - Modelling (WaterCycle & OLI)
5. Process cooling
- Fundamentals of microbiology
 - Bioprocess technologies
 - Design and operational aspects
 - Sludge management
 - Specific case studies