

## **CY-523 WATER TREATMENT**

**Water quality:** water sources and their chemistry and quality such as acidity, alkalinity, total dissolved solid, suspended particle, oxygen, plant nutrients, salinity.

**Water treatment processes:** coagulation and sedimentation, clarification, filtration, Membrane processes, Activated carbon, Biological treatment processes, Pathogen removal, Disinfection chemistry, oxidative processes, Fluoridation, kinetics, and thermodynamics.

**Waste water treatment:** Wastewater treatment (preliminary treatment design, primary tank design/secondary treatment, advanced wastewater treatment); land-based, low-energy and sustainable wastewater treatment systems; sludge handling, treatment & disposal; effluent disposal (including re-use).

Reverse-osmosis (RO) desalination plant

- i. Membranes (micro, ultra, nano and reverse osmosis), Media Filters (sand anthracite and GAC) Filter Underdrain Systems, Biological Filters, Slow Sand Filtration, Backwashing and Air-Scour.
- ii. Chemical Feed Systems including designs and types (Liquid Feed Systems, Dry Feed Systems, and Specialized Feed System).
- iii. Feed water treatments involving Ion Exchange, Adsorption Technologies, Precipitation Technologies, Aeration/degassing Technologies, Iron and Manganese Removal, Nitrate and Arsenic Removal.
- iv. Distribution Water Quality: Corrosion Control, Disinfection by Product Reduction, Prevention of Nitrification, Contaminant Prevention technologies.