

# Advanced Wastewater Plant Operations



## 1.2 CECs, Wastewater Technical

You must attend the entire class to earn the CECs

Class qualifies for 1.2 SHE Engineering. Must take and pass an additional written exam administered at the end of the class to earn SHE credits.

### Agenda - Day 1

- 8:00 – 8:20 Registration
- 8:20 – 8:30 Housekeeping / Introduction
- 8:30 – 10:00 General Review (*Pretreatment, Clarification, Trickling Filters, RBC's*)
- 10:00 – 10:10 Break
- 10:10 – 12:00 Activated Sludge
  - Review (*Microorganisms, F:M, MCRT, Sludge age*)
  - Wasting Rates
- 12:00 – 12:30 Lunch (provided)
- 12:30 – 1:50 Nitrogen Removal
  - Nitrogen Cycle & Microorganisms
  - Operational Controls
- 1:50 – 2:00 Break
- 2:00 – 3:30 Phosphorus Removal (*Chemicals, Math*)
- 3:30 – 4:00 Day End Review and Practice Problems

### Agenda - Day 2

- 8:00 – 8:20 Registration
- 8:20 – 10:20 Residual Solids Management
  - Thickening (*Gravity, DFAS, Belt Filter, Vacuum Filter*)
  - Lime Stabilization
  - Composting
  - Land Application
- 10:20 – 10:30 Break
- 10:30 – 12:00 Mechanical and Instrumentation
  - Review of HP and TDH
  - Pump Curves
  - 4 – 20 milliamps
- 12:00 – 12:30 Lunch (provided)
- 12:30 – 1:30 Mechanical and Instrumentation Continued
- 1:30 – 2:30 Laboratory
  - Laboratory Review (*TSS and BOD, GEO MEAN and Fecal Coliform*)
  - Basic Chemistry
  - QA/QC
  - QA/QC Math ( *Mean, STD DEV*)
- 2:30 – 3:00 Day End Review and Practice Problems
- 3:00 – 5:00 End of Class Exam for SHE's (optional)