



# EXTENDED AERATION SYSTEM

## COURSE DESCRIPTION

Extended aeration system is one of the most widely used biological treatments for sewage treatment. It is a process that uses suspended growth microorganisms to breakdown wastes. For this, the system consists of aeration/mixing, settling, return of activated sludge and removal of biomass. A good understanding on the process control of an extended aeration system is paramount to ensure the treatment of sewage is properly carried out to comply with the legislation requirement of effluent discharge quality.

## COURSE OBJECTIVES

This course aims to provide knowledge and understanding on the treatment process of extended aeration system and on the monitoring, observation and trouble shooting of the extended aeration and clarifier system.

## COURSE CONTENT

- Introduction to sewage
  - What is sewage?
  - Major contaminants of sewage
  - Treatment of sewage
  - Aerobic treatment
- Extended aeration treatment process
  - Primary screen
  - Secondary screen
  - Grit and grease facility
- Extended aeration tank
  - EA process flow
  - Factors affecting performance
  - Aeration and mixing
- Secondary clarifier
  - Secondary clarifier function
  - Scrapper
  - Scum skimmer
  - Return sludge
  - Sludge wasting
  - Final effluent
  - Sludge holding tank
- Health & Safety Aspects of Operating Extended Aeration System
- Process Control
  - Inspection and routine task
  - Process monitoring
  - Common problem and troubleshooting
  - Recordkeeping



## LEARNING OUTCOMES

Upon completion of this course, participants will be able to:

- Understand how an extended aeration process treats the sewage.
- Understand the aeration requirements of an extended aeration system.
- Conduct the required monitoring of the extended aeration system.
- Interpret the data collected from the monitoring.
- Conduct inspection and observation of an extended aeration system.
- Differentiate between normal and abnormal condition of an extended aeration system.
- Understand the sedimentation process in a clarifier.
- Understand the need for sludge recycling and wasting.
- Calculate the sludge amount to recycle and waste.
- Understand problems pertaining to the clarifier.
- Differentiate between normal and abnormal condition of a clarifier.
- Troubleshoot an abnormal condition.
- Understand the maintenance requirement of an extended aeration system and its clarifier.

## DURATION

2 days.

## WHO SHOULD ATTEND

This course is designed for supervisors, team leaders and technicians who are involved in the sewage treatment using extended aeration system. Engineers and executives who directly involved in operation and maintenance of EA system is recommended to attend this course.

## COURSE FEE

RM800.00 per person