

# Certificate of Competency (CoC) In Operation & Maintenance of Silty Water Treatment Plants (SWTPs) for Construction Site Personnel

**\*\* UTAP Funding\*\***

## INTRODUCTION

When it rains, surface runoff passing through bare earth surfaces at construction sites will generate silty water. Builders shall provide adequate earth control measures (ECM) on site including **Silty Water Treatment Plants (SWTPs)** to treat the silty water before discharge into waterways.

Builders shall engage a Qualified Erosion Control Professional Engineer (QECP) to design and supervise the implementation, operation, and maintenance of the ECM system. The ECM system shall comply with the requirements in the Code of Practice on Surface Water Drainage including the discharge standard of not exceeding Total Suspended Solids (TSS) limit of 50 mg/l in concentration before discharging into public drains. Builders shall submit the detailed ECM proposal, endorsed by his QECP, to PUB, Singapore's National Water Agency, prior to the commencement of earth works.

SWTPs are installed as part of the ECM system to treat the silty water to legal limits before discharging into waterways. The SWTPs are the 'heart' of the ECM system to ensure that the treated silty water is continuously treated to legal limits. Therefore, it is critical that QECPs, ECMOs, operators of SWTPs and other construction site personnel have a basic knowledge and understanding on the types of SWTPs their essential features, functions, operations, maintenance, basic troubleshooting etc to ensure SWTPs are operated properly and safely and well maintained at all times.

This 1-day course provides participants with a comprehensive overview of the operation and maintenance of SWTPs, addressing both the theoretical principles and practical applications. It equips participants with the knowledge and skills necessary to operate and maintain efficient, safe, and compliant SWTPs in dynamic construction environments.

## COURSE OBJECTIVE

Upon completion of the course, participants will be able to understand and appreciate the challenges associated with SWTPs and the critical role of treatment in ensuring environmental compliance and operational efficiency and safety.

## SCOPE

- Introduction to Silty Water Treatment Plants (SWTPs) and Regulatory Requirements
- Chemical Treatment Plants (CTPs)
- Membrane Treatment Plants (MTPs)
  - Features / Specifications, Process Description, Factors Affecting Capacity and Performance, Operations & Maintenance, Monitoring & Troubleshooting.
- Automation & SMART Mobile Application
- Safety – Safety Procedures for Operations and Maintenance
- Practical Operations of SWTPs
- Written & Practical Assessments

## TARGET AUDIENCE

Qualified Erosion Control Professionals (QECPs), Earth Control Measures Officers (ECMOs), Environmental Control Officers (ECOs), Site Supervisors, Site Occupier/Owner of construction sites, Site Managers/Executive, Maintenance Personnel, Contractors, Clerk of works and anyone who wishes to learn more about SWTPs for construction industry.

## **COURSE METHODOLOGY / DURATION / LANGUAGE**

1 full-day, classroom-based plus outdoor hands-on operation with Chemical & Membrane Treatment Plants followed by Written and Practical Assessments in English

## **COURSE REQUIREMENT**

Participant must have attended pass the exam for Certificate of Competency (CoC) in Earth Control Measures (ECM) for Construction Site Personnel.

## **COURSE ASSESSMENT**

Participants will be required to take written (open book) and practical assessment on the same day.

-E-Cert of **Certificate of Attendance** will be issued to participants who meet 100% attendance one week after course date via email.

-6 weeks from course date, Result Slip in softcopy, which is also **Certificate of Competency** will indicate P as Pass or F as Fail, will be email to all who attempt the exam and made full payment for the course fee.

**\*\***For registered participants, your Identification Card (IC) / Work Pass will be needed to be presented for verification purposes during the assessment.

**\*\*** Non-scientific calculator can be use during the test, no other electronic devices is allowed.

## **COURSE FEES**

IES Members: \$628      Non IES Members: \$672

## **COURSE LOCATION**

IES Main Office

70 Bukit Tinggi Road, Singapore 289758

## **MEAL**

Halal meals will be provided. If you need vegetarian, please inform via email at least 3 working days before course date.

## **CV OF LECTURER**

### **Mr V. Rajandran**

Dip Civil Engrg, B. App. Sc (Const Mgt) (Hons), MSc (Int'l Const Mgt), ACTA, DACE  
Public Utilities Board (PUB)

Mr V. Rajandran has been supervising and managing drainage construction projects for over 30 years. He was involved in the promotion and implementation of Earth Control Measures (ECM) at construction sites including the enforcement of Sewerage and Drainage Act 1999 and its subsidiary legislations. He was also involved in the sourcing of new products and technologies for ECM and played a major role in procuring the first chemical silty water treatment plant to showcase the technology to the local construction industry.

## PROGRAMME STRUCTURE:

### Certificate of Competency (CoC) in Operation & Maintenance of Silty Water Treatment Plants (SWTPs)

COURSE OUTLINE		
S/No	Time / Duration (Hours)	Topics
1	8.30am to 9.00am (30mins)	<b>1.0 Introduction</b> <ul style="list-style-type: none"> <li>Erosion and Sediment Control / Turbidity</li> <li>Why the need for SWTPs</li> <li>Types of SWTPs</li> </ul>
2	9.00am to 10.30am (90mins)	<b>2.0 Chemical Treatment Plants (CTPs)</b> <ul style="list-style-type: none"> <li>Features / Specifications</li> <li>Process Description - Pre-Treatment, Chemical Mixing &amp; Dosing, Coagulation, Flocculation, Sedimentation &amp; Desludging</li> <li>Operation, Maintenance &amp; Decommissioning</li> </ul>
10.30am to 10.45am (15mins) <b>AM TEA BREAK</b>		
3	10.45am to 11.45am (60mins)	<ul style="list-style-type: none"> <li>Factors affecting Capacity and Efficiency of CTPs</li> <li>Monitoring &amp; Trouble Shooting</li> </ul>
4	11.45am to 12.45pm (60mins)	<b>3.0 Membrane Treatment Plants (MTPs)</b> <ul style="list-style-type: none"> <li>Features / Specifications</li> <li>Process Description - Filtration, Flushing &amp; Backwash</li> <li>Operation, Maintenance &amp; Decommissioning</li> <li>Factors affecting Capacity and Efficiency of MTPs</li> <li>Monitoring &amp; Trouble Shooting</li> </ul>
12.45pm to 1.45pm (60mins) <b>LUNCH</b>		
5	1.45pm to 2.15pm (30mins)	<b>4.0 Automation &amp; SMART Mobile Application</b> <ul style="list-style-type: none"> <li>Remote Monitoring &amp; Control of SWTPs</li> </ul>
6	2.15pm to 2.45pm (30mins)	<b>5.0 Safety</b> <ul style="list-style-type: none"> <li>Safety Procedures for Operations &amp; Maintenance</li> <li>Chemicals – Material Safety Data Sheets (MSDS)</li> </ul>
7	2.45pm to 4.45pm (120mins)	<b>6.0 Practical Operations of SWTPs</b> <ul style="list-style-type: none"> <li>Chemical Treatment Plant (CTP)</li> <li>Membrane Treatment Plant (MTP)</li> <li>Trouble Shooting</li> </ul>
4.45pm to 5pm (15mins) <b>PM TEA BREAK</b>		
8	5pm to 6.30pm (90mins)	<b>Assessments</b> <ul style="list-style-type: none"> <li>Practical Assessment</li> <li>Written Assessment</li> </ul>
<b>(Total 8.5 hours)</b>		
Course Evaluation		
<b>7 hours of training (excluding assessments)</b>		