

# Certificate of Competency (CoC) In Earth Control Measures (ECM) for Construction Site Personnel \*Aug 2017 edition\*

**\*\* Supported by UTAP & SkillsFuture Credit\*\***

## **INTRODUCTION**

When it rains, rainwater runoff, mixing and passing through bare earth surfaces, will generate silty water. To prevent causing silty discharge to the waterways, the builders have to provide adequate earth control measures (ECM) on site before the commencement of earth works.

The builders will need to engage a Qualified Erosion Control Professional Engineer (QECP) to design and supervise implementation, operation and maintenance of the ECM system. The ECM system will need to meet the requirements cited in the Code of Practice on Surface Water Drainage and to comply with the discharge standard of not exceeding total suspended solids (TSS) limit of 50 mg/l in concentration before discharging into public drains, as stipulated under the Sewerage and Drainage Act. The builders shall submit the detailed ECM proposal, endorsed by his QECP, to the PUB, Singapore's National Water Agency, prior to the commencement of earth works.

In place since 1 July 2007, the system has been effective in preventing silty discharge from the construction sites. As the QECPs will not be on site at all time to oversee the ECM, it is important for the builders to have adequate in-house ECM competency to ensure that the system of ECM has been implemented properly, operated and maintained correctly at all time.

This 1-day course is designed to train the contractor's representative to understand the principles of ECM and to allow them to properly implement ECM as designed by the QECP, operate ECM in accordance to the ECM plan and maintain the ECM properly.

## **COURSE OBJECTIVE**

Upon completion of the course, participants will be able to understand and appreciate the system of ECM in place and be competent in assisting the QECPs in monitoring and/or carrying out daily operational activities at the site.

## **SCOPE**

- Introduction to Erosion Control Measures (ECM) and Regulatory Requirements
- Erosion and Sedimentation Control
- ECM Technologies
- ECM Plans and BMPs
- Inspection and maintenance of ECMs
- Case Studies



## **TARGET AUDIENCE**

Environmental Control Officers, 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 ECM at construction sites.

## **COURSE METHODOLOGY & DURATION**

1 full-day, classroom-based, English

## **COURSE ASSESSMENT**

Participants will be required to take 1.5 hour written paper (open book) on the same day. The paper consists of multiple-choice questions, fill-in-the-blanks, true/false, short questions.

-There will be 1/2 hour of revision and preparation given to participants on the same day.

-E-Cert of **Certificate of Attendance** will be issued to participants who meet 100% attendance after 1 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. No Sharing of calculator during exam.**

## **COURSE FEES**

IES Members: \$327

Non IES Members: \$381.50

**\*\*Do refer to the IES website for the latest updates\*\***

## **COURSE LOCATION**

IES Academy @ Jurong East

80 Jurong East Street 21 #04-10 Singapore 609607

## **MEAL**

Halal meals will be provided. If you need vegetarian, please indicate in the form attached.

## **CV OF LECTURERS**

### **Er. Teo Ee Huat**

Er. Teo graduated from Nanyang Technological University with B. Eng (Civil) degree in 1996 and has since completed a MSc in Civil Engineering (NUS) and MSc in International Construction Management (NTU). He is actively involved in education and has completed a M.Ed with University of Western Australia in 2010. He is a Singapore registered Professional Engineer and Qualified Erosion Control Professional. He is currently serving as the Co-Chairman of Qualified Erosion Control Professional Panel, IES and has trained Professional Engineers as Qualified Erosion Control Professionals and also trained construction site supervisors in implementation, inspection and maintenance of Earth Control Measures. He has written papers in International journals on issues related to Construction Management and other issues.

### **Er. Sim Mui Leng**

Er. Sim Mui Leng has over the past 17 years gained good experiences in both civil and structural design and construction work. She was part of the design team undertaking vehicular bridges, underground Mass Rapid Transit stations and tall buildings. She is the design engineer and Qualified Person (Supervision) for the construction of 2.6 km road including 2 vehicular bridges for Singapore Air-show and Events infrastructure works. Mui Leng is the Qualified Person (ST) for the Proposed 9 storey Data Centre at Kim Chuan Road and Proposed 13 storey Pathology Building at Singapore General Hospital. Mui Leng is also the Qualified Person (ST) for the reconstruction of Jetty Structures and Berthing dolphins at Sultan Shoal Lighthouse. Mui Leng's overseas experiences in Vietnam include design and construction of the 200 beds Hanh Phuc International Women and Children Hospital in Binh Duong, Proposed 35 storey textile centre and 17 storey office building in Ho Chi Minh City and a mixed development project at Danang City. Mui Leng is also the QECP (Qualified Erosion Control Professional) for many major projects

### **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, Cap 294. He was 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:

7.5 hours of training (excluding lectures revisions and assessment)					
S/No	Time	Duration	Topics (to be reviewed)		Lecturer
1	8.30am to 9.30am	1	Hours Introduction		PUB
			1	Cleaning up of Singapore River & Urban Pollutants	
			2	ECM Programme, Regulation and requirements	
			3	How to use ECM guidebook	
2	9.30am to 10.00am	0.5	Roles of Contractor, Developer, QECP and ECMO		IES
3	10.00am to 10.30am	0.5	Overview of ECM configuration and components		IES
			1	Development of project site	
			2	Linear sites	
			3	Small sites	
10.30am to 10.45am		TEA BREAK			
4	10.45am to 11.45am	1	Monitoring & Inspection of ECM		IES
			1	Checklist	
			2	Monitoring regime	
			3	CCTV & SIDS	
5	11.45am to 1.15pm	1.5	Basics Erosion & Sedimentation		IES
			1	Definition and types of erosion	
			2	Erosion control: Strengthening subsurface	
			3	Erosion control: Protecting surface	
			4	Definition and methods of sedimentation	
			5	Drains, traps and types of containment systems	
1.15pm to 1.45pm		LUNCH BREAK			
6	1.45pm to 3.15pm	1.5	Interpreting ECM Plan designed by QECP		IES
7	3.15pm to 4.45pm	1.5	ECM component installation, operation and maintenance		IES
			1	Erosion components	
			2	Sedimentation components	
4.45pm to 5.00pm		TEA BREAK			
8	5.00pm to 5.30pm	0.5	Revision		IES
9	5.30pm to 7.00pm	1.5	Examination		IES

# **\*\* MUST READ \*\***

ECMO Registry Website : <https://www.ies.org.sg/Registries/IES/ACES-ECMO-Registry>

## **Objectives of IES/ACES Earth Control Measures Officer**

Effective Earth Control Measures (ECM) at the construction site is an important skill for construction site personnel. Proper ECM would prevent muddy water from affecting our waterway and reservoirs. The Institution of Engineers, Singapore (IES) has set up an industry-based registry for the registration of ECM trained personnel:

1. Establish a list of registered IES Earth Control Measures Officer (ECMOs) for the use by the construction industry.
2. Assist the construction industry in maintaining a list of registered ECMOs who have undergone the Certificate on Competency (CoC) in Earth Control Measures (ECM) training and who have the necessary experience in erosion and sediment control for construction sites in Singapore.
3. Serve the procurement needs of the construction industry for suitably qualified and competent ECMOs.
4. Assist the ECMOs toward achieving better quality and standards of earth control measures (ECM) through continuing education and training

## **Qualifying Criteria for an ECMO**

To register as an ECMO, the applicant must possess or meet the following criteria:

### **I. For New Applicant**

1. Application form
2. A copy of Diploma or Degree in any engineering discipline (local or overseas)  
Or  
A copy of NITEC certificate in any technical discipline with minimum 2 years construction supervisory experience.  
Or  
Minimum 3 years' experience on local construction supervision within the last 5 years.
3. A report detailing relevant ECM experience, duly certified by immediate supervisor, employer or Professional Engineer
4. A valid copy of Certificate on Competency (CoC) in Earth Control Measures (ECM) organised by IES. This certificate must be submitted for registration within 2 years from the day of completion of the last module.

Please refer to the website for the latest for ECMO license application fee.

### Qualifying Criteria for an ECMO

To register as an ECMO, the applicant must possess or meet the following criteria:

- I. For New Applicant
- II. For Renewal Applicant
- III. Fees Payable & Forms

1. Application fee: **\$54.50** (inclusive of 9% GST) w.e.f 1 Jan 2024  
This is applicable only for new applicants.
2. Subscription fee (24 months): **\$130.80** (inclusive of 9% GST) w.e.f 1 Jan 2024
3. Fees payable to "IEH-ACESing Joint Registry"

**\*\*\*For ECMO license application, please email all documents required to the ECMO registry, ECMO registry will give you further instruction, not IES Academy.**

### **Earth Control Measures Officer (ECMO) Registry**

Email: [ECMO@iesnet.org.sg](mailto:ECMO@iesnet.org.sg)

Contact no.: 64611241 for further assistance.