

# IES/ACES PROFESSIONAL COURSE ON EROSION CONTROL (18<sup>TH</sup> INTAKE)

Jointly organized by:



Supported by:



\*SSG grant and Skillsfuture credit

Starting Date	: 23 August 2019 to 18 October 2019 ( <i>Tentative schedule</i> )
Time	: 6.30pm - 9.30pm (Various weekday nights)
Duration	: 16 Sessions
Venue	: IES Academy@Jurong East Devan Nair Institute for Employment and Employability, 80 Jurong East Street 21, #04-10 Singapore 609607
CPD Programme	: 24 PDUs (To be confirmed)
Organising Committee	: Erosion Control Sub-Committee

Members (IES / ACES / PUB) : \$2033  
Non-Members : \$2461

## \*\*SkillsFuture SG (SSG) Fund

### SME

Up to 95% of course fees, \$50 per training hour

### Non-SME

Up to 50% of course fees , \$15 per training hour

### Self-sponsor

WTS – up to 95% of course fees

Mid-career – up to 90% of course fees

Normal – up to 50% of course fees

### Target Audience

#### *Professional Engineers*

The professional course on erosion control will lead to accreditation of professional engineers as Qualified Erosion Control Professionals (QECPs).

The duties and responsibilities of a QECP include designing erosion and sedimentation control measures in construction sites and preparing plans. Submission plans to PUB shall be submitted by a registered QECP.

1. The Trainee has attained a minimum of 75% attendance for the Funded Course.
2. Must attempt and pass the Quizzes and Project Work.
3. For participants under self-sponsor please approach course coordinator for more information on Skillsfuture SG (SSG) Grant and SkillsFuture Credit (SFC) grant.

\*\*All SSG grant subject to SSG grant application assessment and approval.

\*\*All course fees are included 7 %GST

***\* Certificate of successful completion will be issued to participants who achieved 100% attendance and having achieved the required grades for Quizzes and Project Work.***

## **COURSE OUTLINE**

### **Section 1: Introduction to Erosion and Sedimentation Control (3 hour)**

- Overview of course, objectives, expectations and accreditation process
- Regulations and legislation
- Course details and structures
- Roles of Qualified Erosion Control Professional (QECP) and other stakeholders in erosion and sedimentation control at construction sites
- Typical types of construction and areas of concern

### **Section 2: Basic Methods of Erosion Control (3 hours)**

- Fundamentals of earth control
- Erosion on construction sites
- Mechanics of erosion and erosion controls
- Protecting surface: vegetation stabilization and Mulches
- Protecting surface by others means
- Watershed management and surface run-off control
- Costing for earth control measures - erosion control measures

### **Section 3: Calculations of Soil Loss and Sediment Delivery (3 Hours)**

- Background to soil loss calculations
- Formulations for soil loss calculations (USLE, RUSLE, MUSLE etc)
- Calculating Total Suspended Solids in runoffs
- Basic design (accounting for effect of erosion and sedimentation control measures)
- Complete example for typical construction site

### **Section 4: Basic Methods of Sedimentation Control (6 Hours)**

- Concept of sediment yield and delivery ratios
- Classification of sediment control practices
- Surface drainage system
- Subsoil drainage
- Sedimentation trap : Design and details
- Sedimentation basin : Design and details
- Treatment plants (chemical/membrane type): Basic introduction
- Costing for Earth Control Measures – sedimentation control measures

### **QUIZ 1: Assessment of understanding of Section 1 to 4**

**Open book assessment to be conducted at IES Academy**

### **Section 5: BMPs and Erosion and Sedimentation Control Plan (3 Hours)**

- What is BMPs and BAT
- Principles of Erosion and Sedimentation Control Plan (ESCP)
- Planning process of ESCP
- Development of an effective ESCP
- Case study of typical ESCP
- Costing for ECM elements

### **Section 6: Inspection and maintenance of BMPs (6 Hours)**

- Inspection of BMPs
- Inspection requirements and frequency
- Maintenance of BMPs

### **QUIZ 2: Assessment of understanding of Section 5 to 6**

**Open book assessment to be conducted at IES Academy**

## **Project Preparation and Presentation**

### **CVs of LECTURERS / FACILITATORS**

#### **Mr Quah Hock Lai, BEng (Hons)**

Mr. Quah Hock Lai is the Senior Assistance Director in the Catchment & Waterways Department, PUB, taking charge of enforcement and regulatory matters. His other key duties include taking charge of the drainage geographic information system (GIS). He is also concurrently the Quality Service Manager for the Department. Hock Lai has 20 over years of experience working in PUB and the former ENV, covering operation, construction and planning of pollution control, sewerage, drainage and IT matters.

#### **Er. Dr. Chew Soon Hoe, SrMIES, MASCE, MIGS, PEng (Singapore)**

Dr Chew Soon Hoe received his PhD from University of California at Berkeley. He is currently an Assistant Professor in the Department of CE, NUS, and also holds the position of Deputy Director of the Centre for Protective Technology, NUS.

His research interests include geosynthetics, slope engineering, land reclamation, soil improvement, numerical modeling in geotechnical engineering and geo-environmental engineering. In the past 15 years, he has conducted extensive research on geosynthetics, especially on the reinforcement, filtration and drainage applications of geosynthetics material. His particular interest is in the evaluation of the suitability as well as the proper design philosophy of the geosynthetics material in local soil conditions and construction practices. His other research interests include survivability of geotextiles, geosynthetics for erosion control, vertical drains testing and applications.

He has been very actively promoting the use of geosynthetics in civil engineering construction, and has been engaged as consultant to government agencies and private consultants and contractors on geosynthetics related projects and construction in this region. He is also actively consulted in general area of geotechnical engineering including slope stability, pile foundation and excavation related problem. He is currently the President of the Southeast Asia Chapter of the International Geosynthetics Society. He has published very widely and was invited to deliver a number of keynote and special lectures, including in the GaoAsia 2000 conference in KL and the 7TH International Geosynthetics Conference in Nice, France, 2002, 4<sup>th</sup> Asia Regional Geosynthetics Conference in Shanghai, 2008, and 4<sup>th</sup> Europe Regional Geosynthetics Conference in Edinburgh, 2008.

#### **Er. Teo Ee Huat, BE (Hons), M.Ed, MSc (Civil), Msc (International Construction Management), PGD (Construction Management), P.E (Singapore), MIES**

Er. Teo Ee Huat has extensive working experience in the industry and spent 6 years working in design and supervision of wastewater/water treatment plant related projects, as well as hospitality, commercial and transportation projects in Singapore. He also worked in wastewater/water treatment plants in Malaysia, Brunei, Bintan Island and the neighbouring islands. He is a Singapore registered Professional Engineer and Qualified Erosion Control Professional.

## PROGRAMME *(Tentative schedule)*

Date	Module	Lecturers / Facilitators
23 August 2019 (Fri) 6.30pm to 9.30pm	Introduction by Course Coordinator Preventing Silty Water at Our Waterways	Er. Teo Ee Huat Mr. Quah Hock Lai
26 August 2019 (Mon) 6.30pm to 9.30pm	Section 1: Introduction to Erosion and Sedimentation Control	Dr. Chew Soon Hoe / Er. Teo Ee Huat
28 August 2019 (Wed) 6.30pm to 9.30pm	Section 2: Basics of Erosion Control	Dr. Chew Soon Hoe / Er. Teo Ee Huat
30 August 2019 (Fri) 6.30pm to 9.30pm	Section 3: Calculation of Soil Loss and Sediment Delivery	Dr. Chew Soon Hoe / Er. Teo Ee Huat
2 September 2019 (Mon) 6.30pm to 9.30pm	Section 4: Basics of Sedimentation Control	Dr. Chew Soon Hoe
4 September 2019 (Wed) 6.30pm to 9.30pm	Quiz 1: Open Book Test on Section 1 to Section 4	Dr. Chew Soon Hoe / Er. Teo Ee Huat
6 September 2019 (Fri) 6.30pm to 9.30pm	Section 5: BMPs and Erosion and Sedimentation Control Plan	Er. Teo Ee Huat
9 September 2019 (Mon) 6.30pm to 9.30pm	Section 6: Inspection and Maintenance of BMPs	Er. Teo Ee Huat
13 September 2019 (Fri) 6.30pm to 9.30pm	Section 6: Inspection and Maintenance of BMPs	Er. Teo Ee Huat
16 September 2019 (Mon) 6.30pm to 9.30pm	Quiz 2: Open Book Test on Section 5 to Section 6	Er. Teo Ee Huat
25 September 2019 (Wed) 6.30pm to 9.30pm	Project group working session	Panel
2 October 2019 (Wed) 6.30pm to 9.30pm	Project group working session	Panel
7 October 2019 (Mon) 6.30pm to 9.30pm	Project group working session	Panel
14 October 2019 (Mon) 6.30pm to 9.30pm	Project presentation	Panel
16 October 2019 (Wed) 6.30pm to 9.30pm	Project presentation	Panel
18 October 2019 (Fri) 6.30pm to 9.30pm	Project presentation	Panel

\* Company and self-sponsor participants will be eligible for any *SSG funding* and subjected to terms and conditions. Application must be via the *SkillsConnect* (to be eligible for Nett Course Fee payment and for absentee payroll claims if attending course within working hour). Participants who did not apply this course through *SkillsConnect* prior to registration with us will not be eligible for the Nett Course Fee payment. Full course fee will be applicable.

\*\* Course Title in *Skillsconnect* is "IES/ACES Qualified Erosion Control Professional (QECP)"

# Registration Form

## IES/ACES PROFESSIONAL COURSE ON EROSION CONTROL (18<sup>TH</sup> INTAKE)

Date : 23 August 2019 to 18 October 2019 (*Tentative schedule*)  
Time : 6.30 pm – 9.30 pm (Various weekday nights)  
Venue : IES Academy@Jurong East  
Devan Nair Institute for Employment and Employability,  
80 Jurong East Street 21, #04-10 Singapore 609607

Fees \* : **Members (IES/ACES/PUB): \$2033 Non-Members: \$2461**

\*\*For participants under self-sponsor please approach course coordinator for more information on Skillsfuture SG (SSG) Grant and skillsFuture Credit (SFC) grant.

**\*\* Skillsfuture SG (SSG) Grant**

1. The Trainee has attained a minimum of 75% attendance for the Funded Course.
2. Attempt Assessment 1 and Assessment 2.

Please register e-mail/fax the completed form **by 6 August 2019 before 3pm** to:

Att: Christine Lau  
IES Academy @ Jurong East  
80 Jurong East Street 21, #04-10  
Devan Nair Institute for Employment and Employability  
Singapore 609607  
Tel: 6463 9211 Fax: 6560 6030  
Email: [christine.lau@iesnet.org.sg](mailto:christine.lau@iesnet.org.sg)

### Participant Details

<b>*Name (as in NRIC):</b>	Mr./Ms./Er.			
<b>*ID Number:</b>	<b>*ID Type:</b>	<input type="checkbox"/> Singapore Pink Identification Card <input type="checkbox"/> FIN/Work Permit/SAF 11B <input type="checkbox"/> Others	<input type="checkbox"/> Singapore Blue Identification Card <input type="checkbox"/> Foreign Passport	
<b>*Date of Birth (YYYYMMDD):</b>	<b>*Gender:</b>	Male / Female	<b>*Race:</b>	Chinese/ Malay/ Indian/ Eurasian/ Others, pls specify _____
<b>*HP No.:</b>		<b>*Email:</b>	<b>*Work:</b> <b>*Personal:</b>	
<b>*Company Name:</b>		<b>*Designation:</b>		
<b>*Mailing Address:</b>				

Please indicate:  IES members IES M'ship No.: \_\_\_\_\_ P.E. No.: \_\_\_\_\_ (if applicable)  
 ACES Member ACES M'ship No.: \_\_\_\_\_  Vegetarian  
 Non-members

### Contact Person Details (if different from participant)

Name : \_\_\_\_\_ Designation : \_\_\_\_\_  
Mobile No. : \_\_\_\_\_ Fax : \_\_\_\_\_  
Email : \_\_\_\_\_

### Payment Details

Tick here if sponsored by company  Tick here if Self-Sponsor

Bank / Cheque No.: \_\_\_\_\_ Amount (\$): \_\_\_\_\_

#### Note:

- \*Required field for SSG Funding and SSG Training Quality and Outcomes Measurement Survey
- All Fees are inclusive of 7 % GST. Cheque should be made payable to: "IES"

### Acceptance of Terms and Conditions for Registrations of IES Academy's Events

I agree to abide by the Terms and Conditions for Registration of IES Academy's Events.

Name : \_\_\_\_\_ Signature: \_\_\_\_\_

## **TERMS & CONDITIONS COURSE REGISTRATION**

### **Registration**

Any registration, whether on-line or fax will be on a ***first-come-first-served basis*** and will only be confirmed upon receipt of full payment by Engineers Singapore Pte Ltd unless otherwise invoice to company.

All registrations must be submitted with duly completed registration form.

### **Closing Date & Payment**

The closing date of the event will be 1 week prior to event commencement date or earlier. Cheques should be crossed 'A/C payee only' and made payable to "**IES**", with the ***Title of The Event indicated clearly written on the back of the cheques***, and submitted with the duly completed registration forms to:

**IES Academy@Jurong East**  
Devan Nair Institute for Employment and Employability,  
80 Jurong East Street 21, #04-10  
Singapore 609607

### **Confirmation of Registration**

Confirmation of registration will be given at least 1 week before the commencement date via email. ***If you do not receive the said confirmation email, you are required to contact IESA at 6463 9211 during office hours.***

IESA reserves the right to allow only confirmed registrants to attend the Event.

### **Withdrawals/Refunds of Fees**

Written notice ***at least 1 week in advance*** before the commencement of the event

Full course fee shall be refunded subjected to 4.5% transaction charge.

➤ **NO** refund otherwise.

No show of participant would not be accepted as a valid reason for withdrawal/refund.

One-time replacement is allowed only if written notice is received by us at least 1 week before the commencement of the event. However, when an IES member is replaced by a non-member, the participant has to pay the difference in the relevant fees.

### **Cancellation/Postponement**

Changes in Venue, Dates, Time and Speakers for the Events can occur due to unforeseen circumstances. IES reserves the full rights to cancel or postpone the Event under such circumstances without prior reasons. Every effort, however, will be made to inform the participants or contact person of any cancellation or postponement.

Fees will be refunded in FULL if any Event is cancelled by IESA.

**SkillsFuture Credit (SFC)** "All Singaporeans aged 25 and above can use their \$500 SkillsFuture Credit from the government to pay for a wide range of approved skills-related courses. Visit the SkillsFuture Credit website ([www.skillsfuture.sg/credit](http://www.skillsfuture.sg/credit)) to choose from the courses available on the SkillsFuture Credit course directory."

Please visit [HERE](#) for more information on SFC claim.

### **PERSONAL DATA PROTECTION ACT**

I consent to the processing by Institution of Engineers, Singapore of personal data, including sensitive personal data as defined in the Data Protection Act 2014, about me for the proper purposes of Institution of Engineers, Singapore (IES). I undertake to observe the provisions of the Data Protection Act 2014 in relation to any personal data I may myself hold and process as a Members of Institution of Engineers, Singapore, and I agree to indemnify Institution of Engineers, Singapore from liability for any claims or damages that may arise from the processing of this data. For more information kindly refer to [here](#).

### **Enquiries**

For further enquiries, please contact IESA general office at Tel: 6463 9211.

### **Others**

\* Reprint of Certificate of Completion is subjected to \$50 administrative charges

\* For further enquiries, please contact IESA general office at Tel: 6463 9211.