

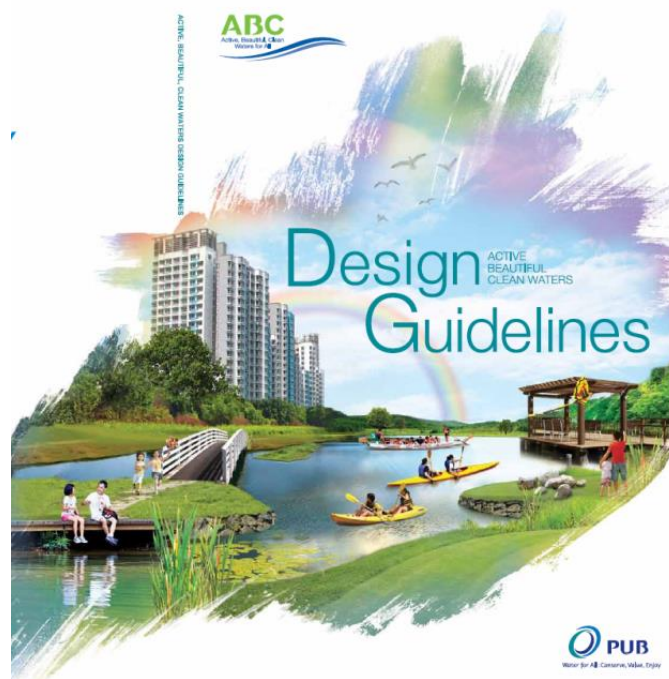


# ABC WATERS PROFESSIONALS COURSE – CORE MODULE CU 2 – 12<sup>th</sup> Run

## Stormwater Quality Management – Planning and Designing

### ABC Waters Design Features

Organised by IES Academy



<b>Date of Course</b>	<b>:</b>	<b>26 August 2020, Wednesday</b>
<b>Time of Course</b>	<b>:</b>	<b>9.00am to 6.30pm</b>
<b>CPD Programme</b>	<b>:</b>	<b>PDU / PDU (QECP) / CPD (All to be confirmed)</b>
<b>Venue</b>	<b>:</b>	<b>IES Academy 80 Jurong East Street 21, #04-10 S(609607)</b>
<b>Fee</b>	<b>:</b>	<b>\$321.00 (IES/SIA/SILA Members) \$406.60 (Non Members)</b>

Supported by:



# **ABC WATERS PROFESSIONALS COURSE - CORE MODULE CU 2 – 12<sup>th</sup> Run**

## **Stormwater Quality Management – Planning and Designing**

### **ABC Waters Design Features**

#### **INTRODUCTION**

Two-thirds of Singapore functions as local catchment areas. Under the Active, Beautiful, Clean Waters (ABC Waters) Programme, PUB has embarked on a journey to harness the full potential of our waters by integrating them with our environment. Over the past 2 to 3 years, other public agencies and private developers have also embraced the ABC Waters Design that leads to improvement in waters quality, enhanced biodiversity and new recreational space for people to get closer to water.

To build up the expertise of industry professionals in ABC Waters design features, the ABC Waters Professional Programme was launched in September 2011. Comprising four core modules and four elective modules, the programme covers the concepts, design, implementation and maintenance of ABC Waters design features.

Participants who complete all four core modules plus any two elective modules and meet the registration criteria of IES/SIA/SILA, would be eligible to be registered as an ABC Waters Professional. Details on the registration criteria can be found at the websites of IES, SIA and SILA. Participants who complete any single module would receive certificate of attendance for the module completed.

In line with the revisions to the Code of Practice on Surface Waters Drainage, developers/owners shall engage on ABC Waters Professional to design, oversee the construction of and develop a maintenance plan for the ABC Waters Design features. The developer/owner shall submit the concept design and design calculations, endorsed by the ABC Waters professional, to PUB as part of their Development Control (DC) submission.

On an annual basis, developers/owners shall also submit a Certificate of Inspection on ABC Waters design features, endorsed by an ABC Waters Professional, if applicable. The Certificate of Inspection shall include a declaration on whether the features have been inspected and are maintained satisfactorily and functioning well.

These new requirements on the endorsement of plans by ABC Waters Professionals will take effect from 1 January 2014 onwards.

# ABC WATERS PROFESSIONALS COURSE - CORE MODULE CU 2 – 12<sup>th</sup> Run

## Stormwater Quality Management – Planning and Designing

### ABC Waters Design Features

#### Course Outline

1. Stormwater Quality & Quantity –  
5 hours lecture by Prof Ong Say Leong
  - Stormwater Quality Management
    - Stormwater Quality
      - Urban Runoff
      - Runoff Quality Characterisation
    - Stormwater Quality Management
      - Brief Overview
      - Storm Water BMPs (Sedimentation basins, Swale / Buffer systems, Bioretention systems)
      - Performance Characteristics
  - Hydrology (Stormwater Quantity Aspects) and MUSIC
    - Stormwater Quantity
      - Rainfall analysis
      - Sea-level analysis
      - Runoff estimation
      - Hydraulic design of drainage
    - MUSIC
      - Interface, modelling approach, output
      - Applications
2. Constructed Wetlands  
1 hour lecture by Mr Carsten M. Huttche
  - Introduction to wetland treatment technology (history, benefits and uses)
  - Design of treatment wetlands (design features and different types of wetland systems)
  - Pollutant removal mechanisms and the role of wetland plants
  - Plant selection and common species used in treatment wetlands
  - Wetland monitoring, management and maintenance (wetland performance, plant management, water quality monitoring)
  - The use of wetland systems in Singapore
3. Cleansing Biotopes & Bio-engineering Techniques  
1 hour lecture by Dr Stephen Tan
  - Definition, background, sense, use, function, technical details, construction method and maintenance
4. MCQ Exams – 1 hour

# ABC WATERS PROFESSIONALS COURSE - CORE MODULE CU 2 – 12<sup>th</sup> Run

## Stormwater Quality Management – Planning and Designing

### ABC Waters Design Features

#### Course Schedule

Time	Course Description	Speaker
8.30am – 9.00am	Registration	
9.00am - 10.00pm	Stormwater Quality Management	Prof. Ong Say Leong
10.00am - 10.15am	Tea Break	
10.15am – 12.45pm	Stormwater Quality Management (cont'd)	Prof. Ong Say Leong
12.45pm - 1.45pm	Lunch Break	
1.45pm - 3.15pm	Hydrology - Stormwater Quantity Aspects & Music	Prof. Ong Say Leong
3.15pm - 4.15pm	Cleansing Biotopes & Bio-engineering Techniques	Dr. Stephen Tan
4.15pm - 4.30pm	Tea Break	
4.30pm – 5.30pm	Constructed Wetlands	Mr Carsten M. Huttche
5.30pm – 6.30pm	MCQ Exams	

## **Speaker's Profile**

### **Prof Ong Say Leong**

Professor Ong Say Leong graduated from the University of Singapore with B.Eng(Civil Engrg) in 1979. He obtained his MEng (Biochemical Engrg) from the University of Western Ontario in 1980 and PhD (Civil Engrg) from the University of Toronto in 1983. His research interests lie in the study of membrane technology for water and wastewater treatment, water quality enhancement, water reclamation and reuse, modelling of water quality enhancement systems, bio-treatment processes and sustainable urban water resources management.

Prof Ong is a registered professional engineer and has been involved in consulting jobs on water and wastewater treatment system and water quality management. He is also active in the professional circuit and has been serving in several environmental engineering committees and editorial boards for international journals in the area of water environment. Prof Ong is a Fellow of The Institution of Engineers, Singapore and a Fellow of the International Water Association. In addition, he is a Diplomate of the American Academy of Water Resources Engineers (D.WRE) and a Board Certified Member of The American Academy of Environmental Engineers (BCEEM). Prof Ong is currently the Deputy Director (Technology) for the NUS Environmental Research Institute (NERI)

### **Mr Carsten M. Huttche**

Carsten is an experienced environmental and water resources specialist with 18 years professional experience. He has been working in Singapore since 1993, and has been based there for the past 16 years. He is currently working closely with Singapore Government agencies, providing specialist environmental design advice on applied bio-engineering solutions for ABC Watershed Projects. Carsten possesses full familiarity with Singapore ecological and environmental conditions and legislation, and how this relates to water resources management in the country. He has worked on a number of similar projects in South and South East Asia, China, and the Middle East, and has been responsible for leading, managing, and coordinating multi-disciplinary environmental and water resource projects.

His environmental management experience includes undertaking water quality assessments, contaminant source studies, biodiversity and land use assessments, and environmental risk and impact assessments. Recently, he has pioneered the development of GIS models for the mapping of environmental sensitive areas for policy decision-making and planning. Lately, he has also been involved in the first climate change adaptation studies for International Financial Institutions such as the Asian Development Bank (ADB). He has a Master's Degree in Biology (major Tropical Ecology) from the Freie Universität Berlin (FU Berlin), one of Germany's leading universities.

Carsten is the Founder and Director of three environmental businesses in Singapore and Indonesia: Environmental Professionals (Enviro Pro), 1998, environmental design and consultancy; Enviro Pro Green Innovations (EPGI) (S) Pte Ltd, 2009, bio-engineering supply and implementation; P.T. Enviro Pro Indonesia, 2007, environmental consultancy and capacity building. He held a Senior Adjunct Lecturer position at Singapore National University (NUS), School for Design and Environment, from 2008-2010. He conducted numerous teaching and speaking assignments since 2001.

### **Dr Stephen Tan Boon Kean**

Dr Stephen Tan is currently a Technical Director of AECOM Singapore. He has over 15 years' experience in water resources engineering, covering a broad range from hydrology, hydraulics to water quality. Dr Tan has completed over 20 ABC Waters Projects in Singapore and overseas; with technical experiences on sediment basin, rain garden, soakaway rain garden, bio-retention swale, vegetated swale, wetland and cleansing biotope.



## REGISTRATION FORM

**ABC WATERS PROFESSIONAL COURSE - CORE MODULE CU 2 – 12<sup>TH</sup> RUN**  
**Stormwater Quality Management – Planning and Designing ABC Waters Design Features**

Date of Course	:	26 August 2020 Wednesday
Course Time	:	9.00am to 6.30pm
Venue	:	IES Academy@Jurong East
Course Fee	:	\$321.00 (IES/SIA/SILA Members) / \$406.60 (Non Members)
CPD Programme	:	PDU (QECP) / CPD / PDU (To be confirmed)
Course Coordinator	:	Joyce Foo IES Academy@Jurong East 80 Jurong East Street 21, #04-10 Devan Nair Institute (e2i), S(609607) Tel: 6461 1238 Email: joyce.foo@iesnet.org.sg
Closing Date	:	18 August 2020, or when the class is full

### Participant's Details

Name	:		NRIC/FIN No	:		
Company	:		Designation	:		
Address	:					
		Postal Code	:			
Mobile	:		Office	:		
				Fax	:	
Email	:					
Please indicate (where applicable)	<input type="checkbox"/>	IES No:	<input type="checkbox"/>	SIA/SILA No:	<input type="checkbox"/>	PE No:
	<input type="checkbox"/>	Non Members	<input type="checkbox"/>	Company Sponsor	<input type="checkbox"/>	Special meal - Vegetarian

### Contact Person's Details (If different from participant)

Name	:		Designation	:	
Mobile	:		Office	:	
				Fax	:
Email	:				

Payment Details	Cash/Cheque/Nets:	Amount:	
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\*All course fees are inclusive of 7% GST, course materials and Halal refreshment.  
 \*Certificate of Attendance will be issued to participants with 100% attendance.

### Acceptance of Terms & Conditions for Registration of IES Academy's Courses/Events

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

Name:

Signature:

Date:

## 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 'Engineers Singapore Pte Ltd', with the ***Title of The Event indicated clearly written on the back of the cheques***, and submitted with the duly completed registration forms to:

**Attn: Joyce Foo**  
**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.

**UTAP (Union Training Assistance Programme)** is an individual skills upgrading account especially for NTUC members. As a member, you enjoy UTAP funding at 50% of the unfunded course fee capped at \$250 every year.

**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."

### 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.