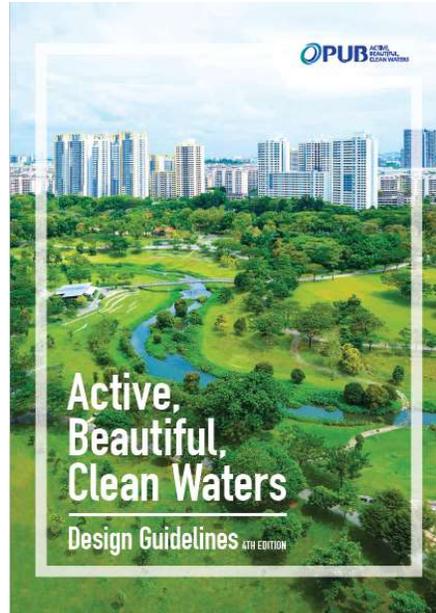




ABC WATERS PROFESSIONALS COURSE – CORE MODULE CU 4 – 13th Run

Design, Construction and Maintenance of Bioretention Basins
and Bioretention Swales

Organised by IES Academy Pte Ltd



Dates of Course	:	4 & 5 May 2023 (Thursday & Friday)
Time of Course	:	9.00am to 1.00pm / 9.00am to 6.00pm
CPD Programme	:	PDU / PDU (QECP) / CPD (All to be confirmed)
Venue	:	IES Academy Pte Ltd 80 Jurong East Street 21, #04-10 S (609607)
Fee (incl. GST)	:	\$486.00 (IES/SIA/SILA Members) \$572.40 (Non Members)

Supported by:



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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 an 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.

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Course Schedule

Day 1		
Time	Course Description	Speaker
8.30am – 9.00am	Registration	
9.00am - 9.30am	ABC Waters Professional Programme - Overall Course Roadmap - Overview of Bioretention Systems - Application and types: Conventional (incl submerged), Soak Away, Modular systems	Mrs Ong Geok Suat / Mr Lim Hong Yi
9.30am - 11am	Engineering design of bioretention basin & bioretention swales - Design considerations for bioretention systems	Mrs Ong Geok Suat / Mr Lim Hong Yi
11am - 11.15am	Tea Break	
11.15am – 11.45am	Step-by-step worked example for bioretention basin (conventional) and Bioretention Swale	Mrs Ong Geok Suat / Mr Lim Hong Yi
11.45am - 12.45pm	Template Application: Hands On Practice on bioretention basin and swale calculation - Worked example for bioretention swale	Mrs Ong Geok Suat / Mr Lim Hong Yi
	END OF DAY 1	

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Course Schedule

Day 2		
Time	Course Description	Speaker
8.30am – 9.00am	Registration	
9AM - 11AM	Landscape Design of Bioretention systems - Landscape design principles for bioretention systems - Plant selection - Maintenance considerations for good design Hands On exercise	Mr Koh Jiann Bin
11am - 11.15am	Tea Break	
11.15am - 12.45pm	Construction of bioretention basin - Site considerations and constraints - Construction sequence - Materials specifications: geotextile, subsoil pipes etc, preparation of filter media - In-site testing for Hydraulic Conductivity - Safety	Mr Koh Jiann Bin
12.45pm - 1.45pm	Lunch Break	
1.45pm - 2.45pm	Maintenance of bioretention systems	Mr Koh Jiann Bin
2.45pm - 4.45pm	Construction of bioretention basin II - Erosion Control Measures	Prof Chew Soon Hoe
	Soil Specifications for Bioretention Systems - Soil composition and considerations for conventional (incl submerged), soak away - Soil testing for hydraulic conductivity - Particle Size Distribution for different layers in bioretention system - Pit-test for in-site soil test	
4.45pm - 5pm	Tea Break	
5pm - 6pm	Assessment Quiz	

Speakers' Profile

Mrs Ong Geok Suat

Mrs Ong Geok Suat graduated with a Bachelor in Civil Engineering from National University of Singapore. She also obtained a Master of Applied Science in Environmental Engineering from University of Toronto, Canada. She has over 20 years of experience in planning and designing both drainage and used waters infrastructure as well as in the operation and management of water reclamation and NEWater facilities. She is currently working in PUB. She is involved in the formulation of ABC Waters Design Guidelines, ABC Waters Certification, ABC Waters Professional Programme and pilot testing of ABC Waters Design features. She is currently involved in the implementation of an ABC Waters Precinct in Punggol East C39, monitoring of ABC Waters pilot projects and applied R&D in catchment characterization and bioretention system.

Lim Hong Yi

Hong Yi graduated with a Bachelor in Environmental Engineering from Nanyang Technological University and has 8 years of experience in the areas of hydrology, hydraulics, drainage and ABC Waters design. He was involved in a number of public and private civil infrastructure projects during his time with an engineering consultancy firm, notably the development of drainage masterplans for Mandai Park Development in Singapore and Kura Kura Bali, a resort island in Indonesia, as well as the ABC Waters Project at Sungei Api Api and Sungei Tampines. Hong Yi is currently an engineer in PUB and is involved in the implementation of ABC Waters projects, such as the recently completed Phase 2 ABC Waters Project at Jurong Lake.

Mr Koh Jian Bin

Jiannbin has devoted his consulting practice to water-sensitive design in the urban environment for the past 10 years. He has extensive technical experience with the use of nature-based solutions to manage and express stormwater in urban spaces and parks. With his unique combination of expertise in design and engineering, Jiannbin applies transdisciplinary thinking and adopts an integrative design approach in his practice. Some of his recent works include the stormwater management design and master plan for a large national garden, the preliminary design for land-use revitalisation along a canal, and ABC Waters design for various HDB greenfield developments. He has worked with such clients as PUB, HDB, NParks, CDL, DPA, and ARUP. Jiannbin is a registered ABC Waters Professional and a committee member of the ABC Waters Programme. He is both a Chartered Engineer and an Accredited Landscape Architect. He is also a certified horticulturist (CUGE CPH) and arborist (ISA).

Dr. Chew Soon Hoe

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, slopes engineering, land reclamation, soil improvement, soil erosion, 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 other research interests include survivability of geotextiles, geosynthetics for erosion control, vertical drains testing and applications. He has been 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.



REGISTRATION FORM

ABC WATERS PROFESSIONALS COURSE – CORE MODULE CU 4 – 13th Run

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Course Time	:	9.00am to 1.00pm / 9.00am to 6.00pm
Venue	:	IES Academy@Jurong East
Course Fee	:	\$486.00 (IES/SIA/SILA Members) / \$572.40 (Non Members)
CPD Programme	:	PDU (QECP) / CPD / PDU (To be confirmed)
Course Coordinator	:	Nancie Neo IES Academy@Jurong East 80 Jurong East Street 21, #04-10 Devan Nair Institute (e2i), S(609607) Email: nancie.neo@iesnet.org.sg
Closing Date	:	21 April 2023, Friday <i>(or when all seats filled)</i>

Participant's Details

Name	:		NRIC/FIN No	:		
Company	:		Designation	:		
Address	:					
		Postal Code	:			
Mobile	:		Office	:		
			Fax	:		
Email	:					
Please indicate	<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"/>	Vegetarian (if food catering permitted)

Contact Person's Details (If different from participant)

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

Payment Details

Cheque (if any):

Amount:

*All course fees are inclusive of 8% 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 ON 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 IES Academy 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. Payment via **Bank Transfer, PayNow, AXS** available. Cheques should be crossed 'A/C payee only' and made payable to '**IES Academy 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: Nancie Neo

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.

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.