

**REGISTRATION FORM**  
**2-Day Course on 'HVAC Design: Pumping System  
 and Pipe Sizing**

**26 & 27 August 2019**

No	Name(s)	M'ship No.	Grade	Fee (RM)*
<b>SUB TOTAL</b>				
<b>TOTAL PAYABLE</b>				
<b>*Course fee is inclusive of 6% SST and HRDF Claimable.</b>				

Enclosed herewith a crossed cheque No: \_\_\_\_\_ for the sum of RM \_\_\_\_\_ issued in favour of "**IEM Training Centre Sdn Bhd**" and crossed 'A/C payee only'. I/We understand that the fee is not refundable if I/We withdraw after my/our application is accepted by the Organising Committee as stated in the **cancellation term**. If I/We fail to attend the seminar, the paid registration fee will not be refunded.

Contact Person: \_\_\_\_\_ Designation: \_\_\_\_\_

Name of Organization: \_\_\_\_\_

Address: \_\_\_\_\_

Telephone No.: \_\_\_\_\_ (O) \_\_\_\_\_ (Fax)

\_\_\_\_\_ (H) \_\_\_\_\_ (HP)

Email: \_\_\_\_\_

\_\_\_\_\_  
 Signature & Stamp

\_\_\_\_\_  
 Date

Photocopies are acceptable

**REGISTRATION FORM**  
**2-Day Course on 'HVAC Design: Pumping System  
 and Pipe Sizing**

**Organised by:**  
**IEM Training Centre Sdn Bhd**

Please Tick	Date	Venue
	26 & 27 August 2019	Wisma IEM, Petaling Jaya

Grade	Offline Rate	*Online Rate
IEM Members	RM1,060.00	RM1,007.00
Non-IEM Member	RM1,590.00	RM1,537.00
<b>*Online Rate - Please register at our website <a href="http://www.iemtc.com">www.iemtc.com</a>.</b>		
<b>BEM Approved CPD Hours = TBA / Ref. No: TBA</b>		

**TERMS & CONDITIONS:**

- Payment via **CASH / CHEQUE / BANK-IN TRANSMISSION**.
- Fee paid is not refundable. Registration fee includes lectures notes, refreshment.
- All registration fees must be **FULLY** paid before commencement of the course. Government agencies and Statutory Bodies are required to provide Local Orders. IEM Training Centre Sdn. Bhd. reserves the right to refuse entry for participant(s) who have not paid their registration fees to attend the course. **THIS REQUIREMENT WILL BE STRICTLY ENFORCED**. \*Please be informed that the course will only be carried out if there is sufficient number of participants. The confirmation or cancellation email will be sent to the registered email address one or two weeks before the event dates.

**PAYMENT METHOD**

- Local Cheque / Banker's cheque made payable to "**IEM TRAINING CENTRE SDN BHD**".
- Directly bank in or online transfer to :- (Please forward soft copy of payment advice)

**IEM TRAINING CENTRE SDN. BHD.**

Account no. 514169143176

Malayan Banking Berhad

## TOPICS

### 1.0 SECONDARY REFRIGERANT: WATER & BRINE

- Water as secondary refrigerant and heat transfer medium
- Glycol system: operation and performance

### 2.0 HYDRONIC SYSTEM IN AIR CONDITIONING SYSTEM

- Energy consumption of pumping system in HVAC
- Constant flow and variable flow systems
- Pump performance under variable flow: Pump Affinity Laws
- Piping system under variable flow: system curve
- Chilled water circuit design: Single loop, Main pipe by-pass, Primarysecondary circuit, Variable Chiller Flow

### 3.0 ENERGY SAVING STRATEGIES IN CHILLED WATER SYSTEM

- Comparative study on the various Control Strategies for secondary pump
- Optimization of chilled water operating temperatures
- Chillers in parallel and in series operation

### 4.0 PUMPING SYSTEM DESIGN

- Closed circuit and open circuit design
- Multiple chiller circuiting for chilled water
- Multiple chiller circuiting for condenser water

### 5.0 PIPING SYSTEM

- Pipe materials for different services
- Pipe insulation – condensation prevention

### 6.0 PIPE SIZING CRITERIA

- Frictional loss and Erosion
- Pipe velocity limitation
- The Darcy-Weisbach Equation for pipe friction calculation
- Frictional Loss Charts for different pipe materials

### 7.0 PIPE SIZING USING CHARTS

- Pipe sizing using Charts
- Chilled Water pipe sizing example

### 8.0 FRICTIONAL LOSS CALCULATION

- The function, construction and pressure losses of various valves & fittings:  
Gate valve, globe valve, butterfly valve, strainers, elbows,  
Tees and so on.
- Calculation of pipe system losses
- Condenser Water pipe sizing example

### 9.0 CHILLED WATER PIPE SIZING TUTORIAL

## PROFILE OF COURSE FACILITATOR



**Ir. Chua Keng Seng**, B.E.(Hons), MIEM, P.Eng., MASHRAE, MIMM, CCP, graduated from the University of Malaya in 1974. Qualified as a Professional Engineer, he worked with Carrier Malaysia Sdn. Bhd., first as the Service Manager and then as Engineering Manager for about 10 years. During the next 25 years, he operated his own companies in contracting, maintenance and also in consultancy business. He has wide experience in the design, installation, trouble shooting on various types of systems and also in project management. He was in the design and project management team which implemented the Putrajaya Precinct 2 District Cooling Plant which has a capacity of 30,000 cooling tons.

Ir. Chua has also been involved in many training programmes. He lectured air conditioning design in the Mechanical Faculty of University Malaya between 1978 to 1984 and in Monash University for the last 3 years. Besides he had been invited to deliver lectures and presentations in the University Technology Malaysia, University Technology Petronas, The Institution of Engineers, Malaysia and conducted in-house training for some Corporate Companies.