IEM Training Centre Sdn Bhd
Company Registration No.127273-K
(Wholly owned subsidiary of The Institution of Engineers, Malaysia)
First Floor, Wisma IEM, 21, Jalan Selangor,
46150 Petaling Jaya, Selangor
SST Registration No: B16-1901-32000051
Telephone No. 03-7958 6851 Fax No. 03-7958 2851
Email: **iemtc@iem.org.my**
webpage: **www.iemtc.com**

2-Day Course on 'Energy Efficient Design, Operation and Control of the Air and Chilled Water Systems in HVAC' by Ir. Chua Keng Seng

Date: 05 & 06 July 2021 | 08 & 09 November 2021
Venue: Wisma IEM, Petaling Jaya, Selangor
Time: 9.00 a.m – 5.00 p.m
Organized by: IEM Training Centre Sdn Bhd

Registration Fee (inclusive of 6% SST)

Dates	Online Training		Onsite Training	
	IEM Member	Non-IEM member	IEM Member	Non-IEM member
05 & 06 July 2021	☐ RM780.00	☐ RM980.00	☐ RM1,000.00	☐ RM1,200.00
08 & 09 November 2021	☐ RM780.00	☐ RM980.00	☐ RM1,000.00	☐ RM1,200.00

Terms & Conditions:

- Closing date: **one week before the event**
- Payment via CASH / CHEQUE / BANK-IN TRANSMISSION / WALK-IN
- FULL PAYMENT must be settled before commencement of the course, otherwise participants will not be allowed to enter the hall. If a place is reserved and the intended participants fail to attend the course, the fee is to be settled in full.
- Fee paid is not refundable. Registration fee includes lecture notes, refreshment.
- **IEM Training Centre reserves the right to cancel, alter, or change the program due to unforeseen circumstances. Every effort will be made to inform the registered participants of any changes. In view of the limited places available, intending participants are advised to send their registrations as early as possible so as to avoid disappointment.**
- **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.**

CANCELLATION POLICY

IEMTC reserves the right to postpone, reschedule, allocate or cancel the course. Full refund less 30% if cancellation is received in writing more than 7 days before the start of the event. No cancellation will be accepted prior to the date of the event. However, replacement or substitute may be made at any time with prior notification and substitute will be charged according to membership status.

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.

TOPICS

Introduction

- Can the Chiller Plant be operated independently to achieve the desired high efficiency?
- Understanding the inter-relationship between the Chiller Plant, Chilled Water Distribution System and the Air-side System from the formula : Q = K x F x dT.
- What are the implications on the performance of the entire Air Conditioning System with the new trend of improving the Chiller Plant efficiencies by increasing the Supply Chilled Water Temperature and increasing the delta T of the chilled water system?
- What are the common causes for moulds and fungi to grow on surfaces in an air conditioned space?

Understanding the performance of chilled water cooling coil

- Fundamental understanding about the air flow capacity and cooling capacity of the coil
- Increasing Chiller Plant efficiencies using high Chilled Water Supply Temperatures and high Delta T can affect the performance of the AHU and Indoor Air Quality
- How the non-performance of cooling coil relating to low delta-T affects system efficiency
- The low delta T problems with the Cooling Coil: design, selection, operation and control aspects

How the Water-side performance of Air Handling Units affect the energy efficiency of the entire system

- Constant flow and variable flow in chilled water system design
- Modulating control valve issues: selection and sizing
- Modulating control valve issues: operation and control
- Pressure Independent Control Valve and Energy Control Valve

How the Air-side performance of Air Handling Units affect the energy efficiency of the entire system

- The miss-match between Chiller Plant and AHU optimization: supply water temperature, delta-T and cfm/ton
- How Constant Air Flow and Variable Air Flow designs affect energy efficiency and energy wastage.
- How the choice of Supply Air Temperature affects chiller plant performance, first cost and operating cost of air-side system and the indoor environmental quality performance.

How Dedicated Outdoor-air System (DOAS) design improves energy efficiency and system performance in humid climate

- Why use DOAS: Demand Control Ventilation
- Why use DOAS: separating the roles of sensible cooling and latent cooling
- DOAS allows higher Supply Chilled Water Temperatures and higher Delta T to be used for better chiller plant efficiency.

Under-floor Air Distribution System design and performance

- The advantages of Under-floor Air distribution System
- How to design with higher Supply Air Temperature without increasing the humidity level in the room space.

Chilled Beam and Chilled Ceiling design and performance

- The advantages of using Chilled Beam and Chilled Ceiling systems
- How to prevent condensation problems in humid climate
- What are the limitations when using Chilled Ceiling System in Malaysian climate.

Designing Chilled Water Distribution System for system efficiency

- The fundamental concepts of constant flow and variable flow in Chilled Water Distribution System
- Constant flow system; variable flow to air-side with by-pass in chiller plant room
- Constant Primary and Variable Secondary flow system
- Variable Primary and Variable Secondary flow system

Energy saving design with Distributed Secondary Pumping System

- Understanding the fundamental pumping energy equation
- Under what circumstances Distributed Secondary Pumping system can save energy
- Variable Primary Pumping with Distributed Secondary Pumping Systems

Energy saving design with Tertiary Pumping System

- Under what situations Tertiary Pumping Systems can save energy
- Comparing Tertiary Pumping and Series Pumping

Efficient Chiller Plant Control System

- Fundamental concepts about flow control and capacity control
- Control philosophies for Secondary Pumping and Primary Pumping systems
- Chiller Capacity Control, Chiller Staging Control and Chiller Minimum Flow Protection

2-Day Course on
'Energy Efficient Design, Operation and Control of the Air and Chilled Water Systems in HVAC'
by Ir. Chua Keng Seng

REGISTRATION FORM

Email: **iemtc@iem.org.my** webpage: **www.iemtc.com**

Organized by: IEM Training Centre Sdn Bhd

Registration Fee (inclusive of 6% SST)

Dates	Online Training		Onsite Training	
	IEM Member	Non-IEM member	IEM Member	Non-IEM member
05 & 06 July 2021	☐ RM780.00	☐ RM980.00	☐ RM1,000.00	☐ RM1,200.00
08 & 09 November 2021	☐ RM780.00	☐ RM980.00	☐ RM1,000.00	☐ RM1,200.00

No	Name(s)	M'ship No.	Grade	Fee (RM)*
1.				
2.				
3.				
4.				
			TOTAL PAYABLE	

You may make payment via Telegraphic Bank Transfer (Please forward soft copy of payment advice):-

Account Name: **IEM TRAINING CENTRE SDN BHD**
Account Number: **514169143176**
Bank Name: Malayan Banking Berhad
Bank Address: Jalan Sultan, 46200 Petaling Jaya, Selangor Darul Ehsan, Malaysia
Swift Code: MBBEMYKL

NB: Kindly take note that all telegraphic charges to be borne by the participants.

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