



# IEM

The Institution of Engineers, Malaysia

**Training Mode:  
Physical**



Organised By Building Services Technical Division (BSTD)

Approved Duration:  
06/12/24 - 05/12/25

HRD Corp Serial No:  
10001495075

# Physical Half Day Course on “Dynamic Air Conditioning Systems”

BEM APPROVED CPD: 4

REF NO: IEM24/HQ/538/C

- Date** : 14 December 2024 (Saturday)
- Time** : 9.00 am - 01.30 pm
- Venue** : Auditorium Tan Sri Prof Chin Fung Kee, Wisma IEM
- Speakers** : Mr. Pua Ching Tian  
: Ir. Al-Khairi Mohd Daud  
: Ir. Gary Lim Eng Hwa

**CLOSING DATE : 7 DEC 2024**

### REGISTRATION FEE'S (subject to 8% SST)

	<b>ONLINE (NON HRDF Claimable)</b> (Log-in for registration & payment: <a href="http://www.myiem.org.my/member/login.aspx">www.myiem.org.my/member/login.aspx</a> )	<b>NORMAL FEE (HRDF Claimable)</b> (By Email : Payment by cash, credit card & bank-in)
IEM Student Members	100.00	150.00
IEM Graduate Members	180.00	230.00
IEM Corporate Members	300.00	350.00
Non-IEM Members (Non of the Above)	500.00	550.00

# Course Synopsis

Dynamic Air Conditioning Systems represent a cutting-edge approach to ACMV design, prioritizing and digitising the large scale project room load calculation, waterside and airside configuration, integration of energy efficiency, parametric green rating selection, occupant comfort, and adaptability to changing environmental conditions. By incorporating advanced control strategies and intelligent sensors, these systems optimize performance in real-time, significantly reducing energy consumption and operational costs.

The talk will emphasize on the various techniques of ACMV system on high performance buildings like Hospital, Pharmaceutical, Data Center, Warehouse and etc with the following Key Principles and Components:

## 1. ACMV Simulation :

- Dynamic Simulation Tools: Performing and digitisation of ACMV design enables system optimisation, resilient waterside and airside plant configuration in compliance to the international standards during design stage.

## 2. Control SetPoint and Real-Time Monitoring:

- Sensor Networks: Control strategy and setpoint are required for the network of sensors to monitor the indoor and outdoor conditions, including temperature, humidity, CO2 levels, and occupancy in 24hours system analysis.

## 3. Variable Air Volume (VAV) Systems:

- Zone-Based Control: VAV systems deliver conditioned air to specific zones within a building, allowing for precise temperature and airflow control while performance better energy efficiency.
- Demand-Driven Ventilation: Ventilation rates are adjusted based on occupancy and indoor air quality, reducing energy waste.

## 4. Energy-Efficient Equipment:

- High-Efficiency ACMV Units: Employing energy-efficient chillers and AHU fan minimizes energy consumption.
- Variable Speed Drives (VSDs): VSDs optimize the operation of motors, reducing energy usage.

## 5. Integration with Building Automation System:

- Centralized Control: BAS integrates ACMV systems for holistic energy management.
- Predictive Control: Leveraging historical data and weather forecasts, BAS can predict future loads and optimize system operation.



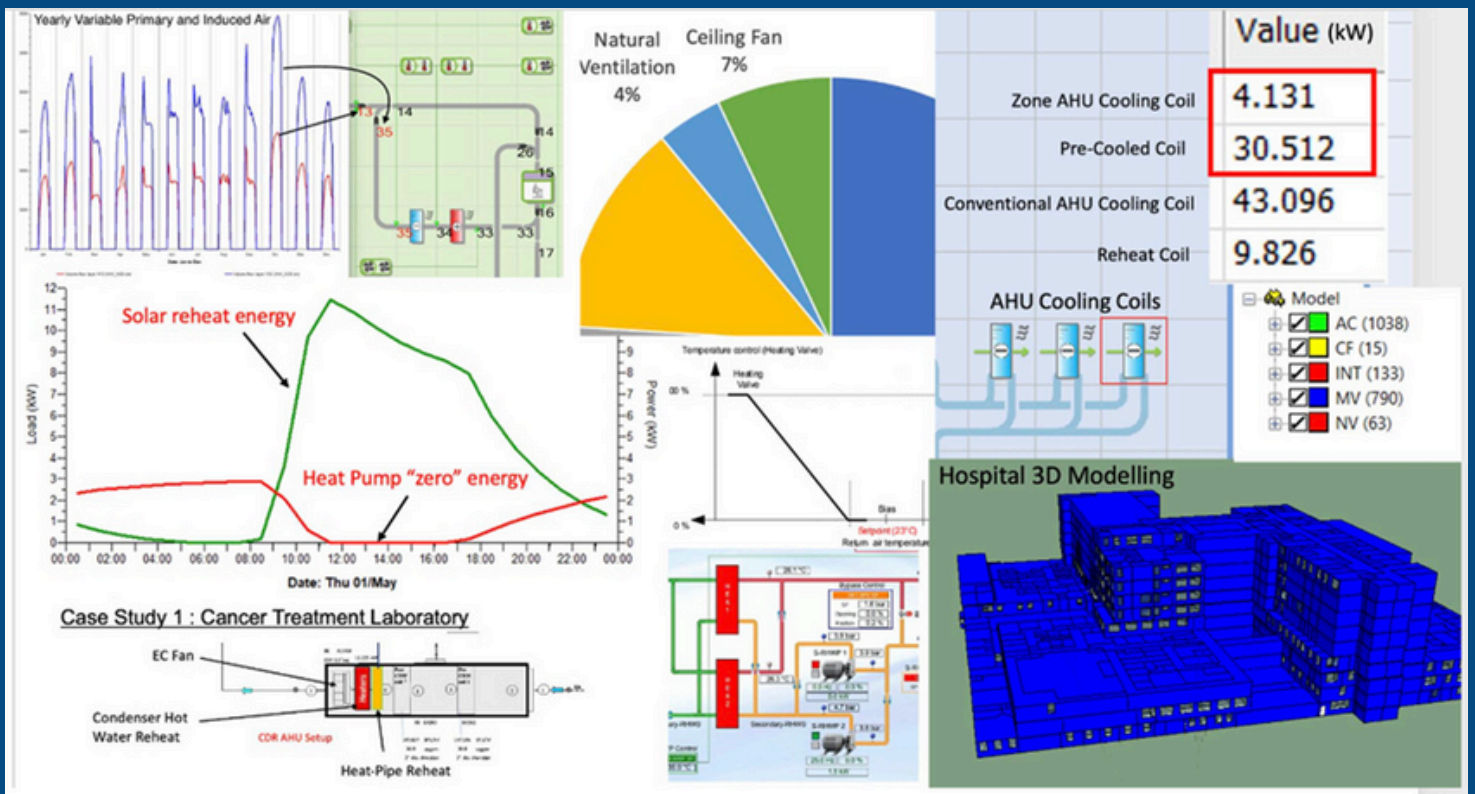
## 6. Innovative Technologies:

- Heat Recovery Systems: These systems capture waste heat from exhaust air to preheat incoming air, improving efficiency such as DOAS AHU.
- Air or Water-Source Heat Pumps: These systems use water as a heat source or sink, providing efficient heating and cooling.
- Renewable Energy Integration: Incorporating renewable energy sources (e.g., solar for reheating) can further enhance the ACMV system efficiency

## Benefits of Dynamic Air Conditioning Systems:

- Energy Efficiency: Significant reduction in energy consumption and operational costs.
- Improved Indoor Air Quality: Enhanced air quality through optimized ventilation and filtration.
- Enhanced Occupant Comfort: Personalized comfort settings and reduced thermal discomfort.
- Reduced Environmental Impact: Lower greenhouse gas emissions and reduced ecological footprint.
- Increased Building Value: Modern, energy-efficient systems can increase property value.

By embracing dynamic air conditioning system design, building owners and operators can create more sustainable, comfortable, and cost-effective environments.



**Hurry!**  
**ATTENTION**  
**GRADUATE MEMBERS**

To REACTIVATE your membership, you only need to pay:

- ✓ Annual Subscription 2024
- ✓ Reinstatement Fee RM 100



**DON'T MISS THIS OPPORTUNITY!**

CONTACT US

03-78900131 Pn. Fatimah

fatimah@iem.org.my

Only applicable until 31st December 2024 - seize the deal today!

# PROGRAMME

TIME	PROGRAMME
08:30 am – 09:00 am	Registration of Participants, Welcome Breakfast at D'Place, Ground Floor, Wisma IEM
09:00 am – 09:10 am	Welcoming Speech by BSTD Representative
09:10 am – 10:40 am	Introduction of dynamic simulation tools for VAV airside system and variable chilled water chiller system with energy efficiency review as compared to constant speed AHU and constant speed chilled water chiller system
10.40 am - 11.00 am	Morning Coffee Break
11.00 am - 12.30 am	Study of hospital, pharmaceutical and data center dynamic airside system in compliance to international standards and energy optimisation
12.30 pm - 1.00 pm	Q&A Session Closing Remarks by BSTD Representative
1.00 pm	Lunch / End of Programme

## Speakers Profile

### Mr. Pua Ching Tian



30++ years of mechanical and electrical engineering contracting and consultancy in design and build contract in healthcare, pharmaceutical, BSL laboratory, airport, warehouse and data center with energy efficiency.

In addition, he is also embarked in dynamic hourly ACMV system design simulation and digitisation of ACMV control strategies for energy efficiency compliance for GBI, GreenMark and LEEDs green rating compliance projects. He has carried out many studies on the energy efficiency of centralised airside and waterside plant system particularly in healthcare institution and other projects in compliance with ASHRAE 55, 170, 62.1 and 90.1 standards.

Currently he is supporting the designated build for the high performance buildings in both Malaysia and Singapore.

He can be contacted via  
<http://linkedin.com/in/pua-ching-tian-063522283>



## Ir. Al-Khairi Mohd Daud



Ir. Al-Khairi Mohd Daud from Faqeh Management has more than 30 years in engineering fields. Ir. Al-Khairi is passionate in understanding energy and practicing energy management. As such he has been the country expert for ASEAN Energy Management Accreditation Scheme (AEMAS) with Malaysia Green Technology and Climate Change (MGTC) that has trained certified energy managers (CEM) and accredited many organizations on Energy Management Gold Standard (EMGS) since 2010.

He is also a Registered Electrical Energy Manager (REEM) both with Energy Commission (EC) and Energy Commission of Sabah (ECoS) and a Professional Energy Manager under ASEAN Centre of Energy AEMAS program. As part of his journey on energy he explored the bioenergy where he practices Reiki, Aikido and Chiqong. Along the way he was introduced to Neurolinguistic Programming (NLP) to become the practitioner of NLP and the LAB profiles. He is currently the chairman for IEM Building Services Technical Division.

## Ir. Gary Lim Eng Hwa



Ir. Gary Lim Eng Hwa has a Bachelor of Engineering (Mech) from the University of Canterbury in 1978. He started working in the manufacturing environment and had over 20 years working experiences in various capacities as Industrial Engineer/Work Study Engineer, Project Engineer, Maintenance Engineer and Factory Management.

He then joined the Insurance industry as a Risk Engineer trained to conduct Fire Risk Assessment in all types of manufacturing industries.

Currently he is a committee member with Building Services Technical Division (BSTD) and Secretary/ Treasurer of Safety in Engineering Special Interest Group (SESIG). In 2016, he attended a certification course and awarded as the Approved ISO31000 Lead Trainer from theGlobal Institute for Risk Management standards G31000.

# REGISTRATION FORM

Physical Half Day Course on "Dynamic Air Conditioning Systems"

14 Dec 2024 (Saturday) **Closing Date : 7 Dec 2024**

Email : shahrul@iem.org.my / syafiq@iem.org.my

## REGISTRATION FEE'S (subject to 8% SST)

### ONLINE (NON HRDF Claimable)

(Log-in for registration & payment:  
[www.myiem.org.my/member/login.aspx](http://www.myiem.org.my/member/login.aspx))

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### NAME

### MEMBERSHIP NO. / GRADE

### FEES (RM)

Sub Total:

SST Added 8% :

Total Amount Payable :

### PAYMENT DETAILS :

Cash RM \_\_\_\_\_

Cheque no. \_\_\_\_\_ for the amount of RM \_\_\_\_\_ (non-refundable) .

**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 participant fails to attend the course, the fee is to be settled in full. If the participant failed to attend the course, the fee paid is non refundable. The Registration Fee includes lecture notes, refreshment and lunch.

For **ONLINE REGISTRATIONS**, please note that payment **MUST** be made **BEFORE the closing date**. If payment is not received within the stipulated time, the registration fee will be reverted to the normal registration fee.

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

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

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

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

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

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

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

\_\_\_\_\_  
Date