



2-day Course on
COOLING CAPACITY CALCULATION
& PSYCHROMETRICS

24 & 25 October 2011

Venue:

IEM Penang Branch
Level 5, 5-A, Northam Venture
No. 37, Jalan Sultan Ahmad Shah
10500 Penang

Organised by:

IEM Training Centre Sdn. Bhd.

Supported by:

IEM Penang Branch

INTRODUCTION

Cooling capacity calculation is the most fundamental requirement for any air conditioning system design. The application of psychrometric principles is often regarded as an area of mystery to many air conditioning engineers. However, it is the key for solving many air conditioning problems such as condensations, humidity problems, non-performance at part-load operations etc.

OBJECTIVE

The objective of this course is to enable participants to calculate the cooling capacity required for a particular air conditioning system. Furthermore, the participants will understand the practical applications of psychrometric in air conditioning, design for humidity controlled systems and problem solving using psychrometric chart.

COURSE CONTENTS

A HEAT LOAD CALCULATION

- An overview: heat loads and cooling capacities, temperature as a state of equilibrium
- Methods of cooling load estimation
- Heat load calculation using E20 method
- Some short-cut methods
- Some pitfalls: under-sizing, over-sizing

B FUNDAMENTAL PSYCHROMETRICS

- A study of the properties of the moist air
- Dry bulb and wet bulb temperatures
- Humidity: Relative humidity and moisture contents
- Dew point temperature

C UNDERSTANDING PSYCHROMETRIC CHARTS

- Properties of moist air
- Temperatures, humidity, enthalpy, density

D FUNDAMENTAL THERMODYNAMIC PROCESSES

- Cooling, heating, humidification, dehumidification
- Understand condensation

E PSYCHROMETRIC CALCULATIONS

- Concept of bypass factor
- Effective sensible and latent loads
- Sensible heat factor
- Mixing of air
- Concept of apparatus dew point temperature
- Calculation of air flow quantities
- Calculation of on-coil and off-coil temperatures

F HUMIDITY CONTROL

- Types of dehumidification methods: Chemical & refrigeration
- Advantages and disadvantages of both methods
- Reheating
- Moisture control at source
- Energy consumption analysis and conservation

PROFILE OF COURSE LEADER

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.

*****IMPORTANT NOTICE*****

All registration fees must be FULLY paid before commencement of the course. No invoice will be issued. 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.

IEM Training Centre Sdn. Bhd. reserves the right to postpone, reschedule, allocate or cancel the course.

Registration fees

IEM Member - RM 700.00
Non-member - RM 900.00

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