Induction Course for new M&E Engineers

22 – 24 September 2025

Hotel Armada Petaling Jaya
Lot 6, Lorong Utara C, Section 52
46200 Petaling Jaya

Organised by

The Association of Consulting Engineers Malaysia

REGISTRATION

Please click the link or scan QR code for ONLINE REGISTRATION

https://kliksini.my/I37Dr

Objective

1. Introduce Professional M&E Consulting Engineering service to new M&E Engineers.
2. A brief run through of M&E design engineering practice.
3. To prepare course participants for further training in specific M&E engineering practice.

Target Audience

Mechanical or Electrical Engineers without formal training in Consulting Engineering practice, and Engineers in consulting engineering firms with up to 2 years' experience.

Language / Course Notes

English will be used for the course and course materials. Participants will receive the course notes in electronic format.

Registration Fee

ACEM member firms	RM 900.00 per person
Others	RM 1,000.00 per person

Registration is on a first-come, first-served basis and will close upon reaching the maximum number. Fee must be settled in full before commencement of course.

Fee will not be refunded for any cancellation. However, substitution of participants can be arranged by informing the ACEM secretariat one week before the course commences.

Closing date for registration is **17 September 2025**.

Continuing Professional Development

The course is eligible for 15 CPD hours for Registered Persons with the Board of Engineers Malaysia.

Certificate of Attendance

E-certificate of attendance will be issued to participants, subject to full attendance.

Enquiries

For further enquiries, please contact the ACEM secretariat at tel. no. 012-5290031 or e-mail vivien@acem.com.my.

Course Contents

I. Professional Practice

1. Laws and Regulations Governing the Engineering Profession
   - 1.1 The Registration of Engineers Act & Registration of Engineers Regulations.
   - 1.2 Overview of Laws having relevance to the practice of Engineering ('Local Council Act', 'Town Planning Act', 'Roads, Drainage & Building Act', UBBL, 'Fire Services Act' etc) (list and brief description of function only).
   - 1.3 Overview of manuals and technical standards mandatory under statutory requirements (list and brief description only).
   - 1.4 Route to registration as P.Eng.

2. Concept of Professionalism and Engineer's Responsibility towards Society & the Public
   - 2.1 Four key concepts in Professionalism (public interest, fiduciary interest, professional conduct, expert knowledge).
   - 2.2 Code of professional conduct.
   - 2.3 The regulated profession and the unregulated profession.
   - 2.4 Introduction to Civil Law Act, basic principles of torts, duty of care required of a professional, 'good samaritan syndrome', fit-for-purpose etc.
   - 2.5 Common issues of Professional Conduct (letter of release, taking-over and supplanting, conflict of interest, etc).

II. Electrical High Voltage & Low Voltage Installations

1. Rules and Regulations Governing Electrical Engineering Practice
   - 1.1 Energy Commission
   - 1.2 TNB requirements
   - 1.3 Bomba requirements
   - 1.4 Department of Environment
   - 1.5 Others

2. Electricity Supply Planning
   - 2.1 Load estimates
   - 2.2 Determination of supply voltage, metering scheme and project phasing
   - 2.3 Requirements for essential and emergency power supply
   - 2.4 Space planning
   - 2.5 Cable routes planning

3. Considerations for High Voltage Supply Scheme Design
   - 3.1 Effects of electromagnetic fields in high voltage design
   - 3.2 Fault level current
   - 3.3 Basic insulation scheme
   - 3.4 Types of switchgears, transformers and cables
   - 3.5 Supply security issues
   - 3.6 Overhead lines versus Underground cabling issues

4. Considerations for Low Voltage Supply Scheme Design
    4.1 Main switchboards
    4.2 Distribution boards
    4.3 Voltage drop considerations for distribution scheme
    4.4 Diesel generator standby sets
    4.5 Motor circuits
    4.6 Lighting design
    4.7 Voltage/Current surges protection
    4.8 Harmonics currents

5. Protection Schemes and Testing
    5.1 Protection rationales
    5.2 Testing rationales

6. Lightning Protection Scheme and Earthing System

III. Air Conditioning and Mechanical Ventilation System

1. Rules and Regulations Governing Air Conditioning and Mechanical Ventilation System
    1.1 Carrier/Trane/ASHRAE Handbook
    1.2 Uniform Building By-Laws 1984 / MS 1525, EECA

2. Heating, Ventilation and Air Conditioning (HVAC) Basics
    2.1 Introduction to air conditioning
    2.2 Principles of refrigeration
    2.3 Psychrometrics
    2.4 Cooling load estimation and software
    2.5 Refrigerant issue and impact on environment

3. Air-Conditioning Systems and Energy Efficiency
    3.1 Room air conditioners (RAC)
    3.2 Split units
    3.3 Air cooled packaged units
    3.4 Water cooled packaged units
    3.5 Chilled water system
    3.6 Variable Refrigerant Flow (VRF) systems
    3.7 Other systems and Energy Efficiency system design

4. Air & Water Distribution and Human Comfort
5. Equipment and Selection
6. AHRI & other Standards for Chillers & VRF systems
7. Latest development in ACMV in Malaysia
8. An introduction to Green and Sustainable Buildings

IV. Lifts and Escalators

Topic I

1. Understanding the various components of the elevator system.
2. Basic elevator specification.

Topic II

1. Understanding concept of Lift Analysis and performance criteria.
2. How to select the appropriate elevator systems to meet building requirements.

Topic III

1. Understanding the installation process.
2. Understanding the Factories and Machinery Act and other Codes.

Topic IV

1. Understanding the basic components of escalator systems.
2. Understanding the installation process of escalator systems.
3. Some safety considerations in planning escalators in a building.

V. Hydraulics Services

1. Introduction
    - 1.1 Rules and Regulations
    - 1.2 Guidelines and Standards
    - 1.3 Plan Submission

2. Cold Water System
    - 2.1 Cold Water System Design
        - 2.1.1 Establish Requirement
        - 2.1.2 Water Demand
        - 2.1.3 Storage Provision
        - 2.1.4 Pressure Booster System
        - 2,1,5 Distribution Pipe Sizing
    - 2.2 Piping Materials
    - 2.3 Testing

3. Hot Water System
    - 3.1 Heating System
    - 3.2 Types of Water Heater
    - 3.3 Hot Water System Design
        - 3.3.1 Hot Water System Sizing
        - 3.3.2 Hot Water Reticulation System

4. Sanitary Plumbing System
   - 4.1 System Design
     - 4.1.1 Design Objectives
     - 4.1.2 Design Criteria
     - 4.1.3 Vent Pipes
     - 4.1.4 Branch Pipes
     - 4.1.5 Discharge Stack
     - 4.1.6 Drain or Collection Pipe
     - 4.1.7 Drainage Below Ground
   - 4.2 Piping Materials
   - 4.3 Testing

VII. Fire Safety Systems

1. Rules and Regulations Governing Fire Fighting and Alarm Systems
   - 1.1 Uniform Building By-Laws 1984
   - 1.2 Fire Services Act
   - 1.3 NFPA, LPC
   - 1.4 Approval procedures

2. Passive Fire Safety Provisions (Architectural Scope of Responsibility)
   - 2.1 Compartmentation for fire separation
   - 2.2 Emergency escape exits and staircases
   - 2.3 Fire fighting access

3. Active Fire Systems
   - 3.1 External fire hydrants
   - 3.2 Hose reel system
   - 3.3 Dry and wet riser systems
   - 3.4 Automatic sprinkler system
   - 3.5 Portable extinguishers
   - 3.6 Gaseous extinguishing systems
   - 3.7 Foam system

4. Fire Detection and Alarm Systems
   - 4.1 Smoke and heat detectors
   - 4.2 Special detectors
   - 4.3 Manual call points
   - 4.4 Fire alarm panel
   - 4.5 Conventional and addressable systems

5. Public Address and Intercom Systems
   - 5.1 Public address system
   - 5.2 Firemen’s intercom system

6. Smoke Control System
   - 6.1 Smoke extraction system
   - 6.2 Staircase pressurisation system
   - 6.3 Fire lobby pressurisation system

7. Fire Mode Interface Operation with all other Services
   - 7.1 Lifts
   - 7.2 Genset
   - 7.3 ACMV plants
   - 7.4 Roller shutters
   - 7.5 Automated doors
   - 7.6 Central fire station

VIII. Extra Low Voltage System

1. Telecommunication System
   - 1.1 Overview
   - 1.2 Fixed Network Infrastructure
   - 1.3 In-building fibre cabling for Fibre-to-the-premise

2. SMATV System
   - 2.1 Theory of SMATV
   - 2.2 SMATV System Design

3. CCTV Surveillance System
   - 3.1 Camera and video fundamental
   - 3.2 Lenses
   - 3.3 Camera Selection
   - 3.4 Analogue vs Digital

4. Security System
   - 4.1 Introduction
   - 4.2 Security Components
   - 4.3 Perimeter and Interior Protection

5. Building Automation System
   - 5.1 Introduction
   - 5.2 Control – types of inputs and outputs
   - 5.3 System Infrastructure
   - 5.4 Integration with other systems

Course Lecturers *(subject to change without prior notice)*

Ir. Chong Chew Fan	*Greatians Consulting Sdn Bhd*
Ir. Lam Kim Seong	*Prudenergy Consulting Sdn Bhd*
Ir. Ng Joo Yoong	*Primetech Engineers Sdn Bhd*
Ir. Ng Yong Kong	*NYKK Engineering Group Sdn Bhd*
Ir. Walter Sim Kian Joo	*LYS Consult Sdn Bhd*
Ir. Soon See Leak	*SoonSL Enterprise*
Ir. Thin Voon Tuck	*MEP Engineering Sdn Bhd*