Training Course on Energy Audit for Building Energy Efficiency 5, 7, 12 & 14 March 2019

ORGANISER[1]

12th Intake

SUPPORTING ORGANIZATIONS

(TBC)

(TBC)

Remark: This activity is regarded as General CPD Event for BEAM Pro.

Course Objectives

The main purpose of this course is to provide the participants with the fundamental principles, skills and guidelines needed to carry out effective energy audits in accordance with the Building Energy Efficiency Ordinance. After taking the course, the participants would appreciate the approach to identify energy saving measures and perform quantitative analysis to predict the energy savings, environmental and economic benefits. Moreover, the participants should be able to measure and verify the performance of implemented energy saving measures.

Key Speakers

- **Ir Joseph Chan**, Honorary Advisor, Energy Institute Hong Kong
- **Ir Gary Chiang**, Past Chairman, Energy Institute Hong Kong / Acting Senior Residential Market Development Manager, Residential Customer Experience, CLP Power Hong Kong Limited
- **Ir Prof Michael KH Leung**, Associate Dean and Professor, School of Energy and Environment, City

[1] The Energy Institute Hong Kong Branch is Incorporated in Hong Kong with limited liabilities

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- **Ir Dr Edward Lo**, Associate Professor, Department of Electrical Engineering, The Hong Kong Polytechnic University
- **Ir Dr Albert So**, Director, Asian Institute of Built Environment; *OR*, **Ir Charles Wong**, Principal Instructor, Pro-Act Training and Development Center (Electrical), Vocational Training Council (TBC)
- **Ir Dr TM Chung**, Adjunct Professor, Department of Building Services Engineering, The Hong Kong Polytechnic University

General Information

Date & Time:	5, 7, 12 & 14 March 2019 (Tuesdays & Thursdays); 6:30 pm – 9:45 pm	
Venue:	HKPC Building, 78 Tat Chee Avenue, Kowloon Tong	
Medium of Instruction:	Cantonese (for Lift and Escalator Lecture) / English	
Target:	Practicing engineers, energy managers, energy auditors, environmental officers, building services managers, plant managers, etc.	
Course Fee:	HK$2,800 per person (member of EI) HK$3,000 per person (member of Supporting Organizations) HK$3,500 per person (non-member)	(includes training material and tea breaks)
Registration:	Please register via online system ***https://goo.gl/b3Tr3M*** (copy this link and paste on the browser if it cannot be linked directly) for seat reservation. We will advise you of the payment details after receiving your registration. *Note: Enrolment will only be confirmed upon receipt of course fee.*	
Registration Deadline:	18 March 2019	
CPD:	CPD certificate will be issued to all participants by the Organizer. This activity is regarded as General CPD Event for BEAM Pro.	
Enquiry:	Ms Li [Tel: (852) 2967 8855; email:aprilagc@gmail.com]	

Course Contents

Lecture 1 [5 March 2019 (Tuesday)]

Introduction to the Buildings Energy Efficiency Ordinance (BEEO) (Ir Joseph Chan)

- Legislative Framework
- Requirements of Energy Audit
- Qualification and Duties of Registered Energy Assessors (REAs)

Energy Audit (Ir Joseph Chan)

- Management procedures for energy audit: walk-through inspection, detailed energy audit and identification of energy management opportunities (EMOs).

Energy Saving Measurement and Verification (M&V) Methods (Ir Gary Chiang)

- International Performance Measurement & Verification Protocol; instrumentation and measurement techniques; baseline adjustment; error and uncertainty analysis; third-party verification.

Economic Analysis and Environmental Impact Assessment (Ir Gary Chiang)

- Discussion of common economic analysis methods used to determine the cost effectiveness of energy efficiency measures.
- Life-Cycle carbon emission analysis for energy efficiency measures.

Lecture 2 [7 March 2019 (Thursday)]

Heating Ventilating and Air-Conditioning (HVAC) (Ir Prof Michael KH Leung)

- Measurements and evaluation of energy efficiency of chillers, water-side systems and air-side systems; coefficient of performance (COP) analysis.
- Provision of thermal comfort and good indoor air quality in an energy-efficient manner.
- Qualitative analyses of effective energy management opportunities for HVAC systems, including

temperature settings for chilled water supply and indoor air, building envelops meeting the overall thermal transfer value (OTTV) requirements, evaporative cooled condensers, variable-speed pumps, automatic cleaning devices for seawater cooled condensers, Fresh air intake control and more.

Water Heating Systems (Ir Prof Michael KH Leung)

- Evaluation of fuel-fired water heater and energy efficiency of condensing water heater.
- Heat pump water heater and integrated heat pump for cogeneration (water heating and air-conditioning).

Commercial Cooking (Ir Prof Michael KH Leung)

- Evaluation of gas cookers, electric cookers, induction cookers.
- Energy saving by innovative heat-pump steamers.

Lecture 3 [12 March 2019 (Tuesday)]

Electrical Systems and Power Quality Improvement (Ir Dr Edward Lo)

- Energy efficiency for electrical distribution systems, including transformers and wires.
- Procedures of measuring and improving power quality for buildings due to low power factor and/or high harmonics (typically caused by electronic equipment).
- Experimental tests suitable for evaluating energy use of electrical systems and for identifying any power quality problems.
- Calculation of energy and cost savings due to improvement in electrical systems performance and power quality.

Lecture 4 [14 March 2019 (Thursday)]

Lift and Escalator (Ir Dr Albert So or Ir Charles Wong)

- Maximum allowable electrical power requirements.
- Energy consumption measurements of lift and escalator Systems.
- Total harmonic distortion and power factor of motor drive systems.
- Energy efficient designs.

Lighting Systems (Ir Dr TM Chung)

- Photometry and light measurements.
- Incandescent lamps, fluorescent lamps, electromagnetic ballasts, high-frequency electronic ballasts, light-emitting diode (LED).

**** Contents are subject to change without further notice***