

Organiser<sup>1</sup>



**WEBINAR**

# TRAINING COURSE ON ENERGY AUDIT FOR BUILDING ENERGY EFFICIENCY

**(17th Intake)**

**5, 7, 12 & 14 December 2023**

## Supporting Organisations (TBC)



<sup>1</sup> The Energy Institute Hong Kong Branch is Incorporated in Hong Kong with limited liabilities.

## 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 Buildings 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 Gary Chiang**, Past Chairman, Energy Institute Hong Kong / Principal Manager – Business Development & Support, CLP Power Hong Kong Limited
- **Ir Dr Edward Lo**, Adjunct Associate Professor, Department of Electrical Engineering, The Hong Kong Polytechnic University
- **Ir Prof. Michael KH Leung**, Associate Provost (Academic Affairs), City University of Hong Kong
- **Ir Dr TM Chung**, Past Chairman, CIE (Hong Kong) / Past Chair, CIBSE Hong Kong Region
- **Ir Dr Albert So**, Director, Asian Institute of Built Environment

## General Information

<b>Date &amp; Time:</b>	<b>Trial Run for Webinar</b>	30 November 2023 (Thu): Between 7:00 pm – 9:00 pm
	<b>Lectures (webinar only)</b>	5, 7, 12 & 14 December 2023 (Tue & Thu): 6:30 pm – 9:45 pm
		<i>(Please also reserve 19 December 2023 (Tuesday) as a fallback date for this course)</i>
<b>Means:</b>	Webinar <i>(Link to be advised)</i>	
<b>Medium of Instruction:</b>	English / Cantonese (TBC)	
<b>Target:</b>	Practicing engineers, energy managers, energy auditors, environmental officers, building services managers, plant managers, etc.	
<b>Course Fee:</b>	HK\$2,800 per person (Members of EI) HK\$3,000 per person (Members of Supporting Organisations) <i>(including training materials)</i> HK\$3,500 per person (Non-members)	
<b>Training Materials:</b>	Soft copy ONLY / BOTH hard copy and soft copy <i>Participants can collect the hard copy in Kowloon (details to be advised)</i>	
<b>Registration:</b>	Please register via online system: <a href="https://bit.ly/energyaudit17">https://bit.ly/energyaudit17</a> (copy this link and paste it into the browser if it cannot be linked directly) for seat reservation.  We will advise you of the payment details after receiving your registration.  <i>(Note: Enrolment will only be confirmed upon receipt of course fee.)</i>	



**Registration  
Deadline:** 1 November 2023

- CPD:**
- CPD certificate will be issued to all participants by the Organiser.
  - 9 CPD hours can be claimed by Registered RCx Practitioners / RCx Professionals for HKGBC Training and Registration Scheme.
  - This is a CPD Event for RCx Practitioner / RCx Professional.

**Enquiry:** Ms Melody Yau Tel: 2967 8855 Email: [events@agchk.com](mailto:events@agchk.com)

## Course Contents

### Lecture 1 [5 December 2023 (Tuesday)]

#### **Introduction to the Buildings Energy Efficiency Ordinance (BEEO) (TBC)**

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

#### **Energy Audit (Ir Gary Chiang)**

- 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 December 2023 (Thursday)]

#### **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 3 [12 December 2023 (Tuesday)]**

**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 envelopes 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 4 [14 December 2023 (Thursday)]**

**Lighting Systems (Ir Dr TM Chung)**

- Photometry, light and colour measurements.
- Lamps and lighting energy efficiency.

**Lift and Escalator (Ir Dr Albert So)**

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

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