Certified Measurement and Verification Professional®

Program for Professional Certification

Date: 3, 6, 8, 10, 13, 15, 17 & 20 Dec, 2021 On-line Teaching (using ZOOM)
Time: 18:00 to 21:00
Exam: 30 December 2021(Tentative)
Venue: On-line by ProctorU

Course Code:	**CMVP/05/HK**
Early Bird Deadline:	**31 August, 2021**
Registration Deadline:	**14 November, 2021**

THE MARK OF A PROFESSIONAL

Association of Energy Engineers, in cooperation with the Efficiency Valuation Organization (EVO), has established the **Certified Measurement and Verification Professional** program with the dual purpose of recognizing the most qualified professionals in this growing area of the energy industry, and raising the overall professional standards within the measurement and verification field.

The International Performance Measurement & Verification Protocol (IPMVP), first established by the U.S. D.O.E., has become the internationally recognized protocol for performance measurement and verification (M&V). The IPMVP guidelines, built with the help of organizations from 16 countries and hundreds of individual experts from 25 nations, provides a consistent, reliable approach to M&V around the world.

Since 1981, AEE has certified over 22,000 professionals within the energy industry. AEE's certifications are recognized by governmental agencies, including the U.S. Department of Energy and the U.S. Agency for International Development, as well as by utilities, end users, and energy service companies. When you earn the right to put the initials "CMVP" behind your name, you are distinguishing yourself among those involved professionally in areas requiring the application of accurate and reliable measurement and verification methodologies. You have demonstrated high levels of experience, competence, and specialized knowledge within your field.

COMPREHENSIVE TRAINING PROGRAM FOR CMVP

Course & Exam Fee:

A1:	**Ordinary Applicants:**	**HK $13,500**
A2:	**Early Bird[#]:**	**HK $12,000**
Re-exam		**HK $ 3,000**

[#] Early Bird: Registered before 31 May, 2021

Supporting Organizations:

ABOUT THE COURSE

Proven energy savings are now playing a significant role in financing energy management programs, whether through energy performance contracts or through emission trades under schemes such as the clean development mechanism of the UNFCCC. While interest in savings data is growing, the state of the art in determining savings has also been rapidly evolving. This seminar will examine current best practices for determining and documenting savings, specifically reviewing the current edition of the International Performance Measurement & Verification Protocol (IPMVP). Attendees will learn the process of designing a proper M&V program for their projects, including cost/accuracy tradeoffs, baseline adjustments, interactive effects, types of savings, maintaining transparency, and analysis methods. Examples of specific techniques will be presented, along with common pitfalls which can result in unreliable savings reports. These techniques are central to management under the new ISO 50001 standard for Energy Management Systems. Class time will include problem solving and debate. Bring a calculator and any M&V challenges you may currently face for general discussion. Through participating in a "fundamentals" course, persons experienced in M&V will also appreciate the assembly of all of the issues, the debates, and engagement at their own level with expert instructors.

INSTRUCTOR

Ir Gary Chu got BSc in Electrical & Electronics Engineering from the University of Macau in 1993 and MPhil in Electrical Engineering from the HK PolyU in 2000. About 25 years' experience in the process plant and energy technology areas. Between 2005 and 2007, he was invited by Macao SAR Government as a technical consultant for responsible for the development on energy market at Macao. Now he is an independent consultant on number of companies in various engineering area. Specifically, at the Mainland China, he provides an energy management consultancy service which including energy audits, energy data analysis, baseline measurement, M&V plan, and energy efficient project. He also achieved various professional qualifications on energy and green building areas: CEM®, CAP, CMVP®, CEA, CBCP®, BEAM Pro and LEED® Green Associate. He also provided the professional certificate training on CMVP® (EVO Accredited L3 Instructor) and CEM®, CAP and CBCP® (Authorized Instructor of the AEE).

COURSE OUTLINE

REASONS FOR M&V

- Types of uses for M&V
- M&V's role in financing

CURRENT M&V PROTOCOLS

- Relationship of IPMVP and other guidelines

IPMVP

- Its evolution
- Overview of IPMVP Options A, B, C & D

DEVELOPING AN M&V PLAN

- Principles of M&V
- Scope of energy to be monitored
- Differences between M&V for industry and for buildings
- "Cost avoidance" or "normalized savings?"
- Choosing independent variables for routine baseline adjustments
- Sources of data
- M&V budgets
- Selecting the baseline period and data
- Measurement systems design, commissioning & maintenance
- Baseline analysis methods
- Various forms of savings computation
- Valuing savings
- Routine procedures and QC
- Managing the uncertainty created by sampling, metering, modeling and unknowns
- Bias and rounding
- Reporting procedures
- Coordinating with other purposes
- When to do the M&V Plan

CURRENT ISSUES IN M&V

- Coping with missing data
- Cost/uncertainty tradeoffs
- Monitoring IAQ

BASELINE ADJUSTMENTS

- Why they are necessary
- Who does what, when

KEY ELEMENTS OF SUCCESS: THEORY & EXAMPLES OF IPMVP OPTIONS

- Details of IPMVP methods
- Retrofit isolation (IPMVP Options A & B): Instrumentation issues
- Whole facility (IPMVP Option C): Utility billing issues
- Calibrated simulation (IPVMP Option D): Simulation issues
- Lessons from tough experience

SELECTING OPTIONS: WHICH ONE IS BEST SUITED FOR MY PROJECT?

ADHERENCE WITH IPMVP

Supporting Organizations:

DAILY AGENDA

Day 1

Module 1 – Introduction
Module 2 – Key Concepts

Day 2

Case Study (1)
Module 3 – Short Examples
Practical Exercise (Using EXCEL)

Day 3

Module 4 – M&V Planning
Case Study (2)
M&V Plan Exercise

Day 4

Review M&V Plan Exercise
Module 4 – M&V Planning
Case Study (3)

Day 5

Module 5 – Critical Issues
Case Study (4)

Day 6

Module 6 – M&V Calculations
Sample Questions (Homework)

Day 7

Questions Review
Module 7 – Retrofit Isolation Details
Module 8 – Option C Details
Module 9 – Option D Details

Day 8

Module 10 – Other M&V Applications
Module 11 – Summary and Review of a Detailed M&V Plan
Additional / Q&A

ADDITIONAL BENEFITS

- 3-hours pre-course training & ISM&V course for registration candidates (Free of Charge)
- Free 1-year M&V Professional subscription with EVO upon completion of this program

ELIGIBILITY

The prerequisites to qualify for the certification process have been designed to take into account the possible diversity of education and practical experience an individual may have. However each CMVP candidate must meet one of the following criteria with the pass of exam:

- A **Certified Energy Manager (CEM)**
- An **engineering, science, business degree or related degree and/or R.P.E and/or P.E.**, with at least ***three*** years experience in energy or building or facility management, or measurement and verification.
- A **technical diploma or certificate**,
  A ***four*** years non-technical degree or technical diploma with a least ***five*** years of verified experience in energy or building or facility management, or measurement and verification.
- ***Ten*** years of verified experience in energy or building or facility management, or measurement and verification.

Supporting Organizations:

CONDITIONS

1. All candidates should firstly email the form for registration and pay ASAP for seat confirmation.
2. Every effort will keep the course date unchanged. However, all candidates will be informed well in advance should there be any change of course date.
3. The course contents may subject to change according to the decision of the instructors.
4. The exam will either at assigned venue in Hong Kong or on-line by ProctorU from AEE USA subject to the organizer's arrangement.
5. The exam date may be changed according the organizer's arrangement and the students for on-line exam are subject to taking exams at different date and time by ProctorU.
6. The organizer reserves the right to cancel the course should there be insufficient candidates or other reasons. Course fee will then be refunded 100%.
7. The organizer reserves the right to close the application before the deadline should the application exceeds the maximum intake.
8. All CMVP successful candidates will enjoy a 1-year free AEE membership and a CMVP certificate if he/she fulfils the eligibility requirement.
9. A limited maximum of 40 students will be accepted for the class.

Supporting Organizations:

< REPLY SLIP >

Certified Measurement and Verification Professional (CMVP) Program for Professional Certification

Course Code: CMVP/05/HK

REGISTRATION

Early Bird Deadline: 31 August, 2021
Course Deadline: 14 November, 2021

(First come first served, application may early close if class size reaches 40)

To register, please complete the reply slip and email to aeefiona@gmail.com & info@aee-hkc.hk

Method of Payment, please refer to below:

By direct deposit or ATM transfer to AEE's HSBC Account no. 614-054229-838.

(Please write your name on the bank-in slip and then email to Fiona Lok aeefiona@gmail.com & info@aee-hkc.hk) or WhatsApp: (852) 9211 2547.

COURSE ENQUIRY

Dr Leonard Chow, AEE Authorized Course Certification Manager in Hong Kong.
Tel: (852) 2566 3397, leonardchow@ispl.com.hk

AND / OR

Ir Gary Chu, AEE Hong Kong Chapter / Course Adminstrator
Tel: (852) 9156 3562, WhatsApp: (853) 66858990, kkchu@macau.ctm.net / info@aee-hkc.hk

		Fee	Amount (HK$)
Course & Exam Fee	A1: Ordinary Applicants	HK $13,500	
	A2: Early Bird	HK $12,000	
	Re-exam	HK $3,000	

Name (Same as HKID Card): _____ (Ir/Mr/Ms/Miss)

Company Name: _____

Position Title: _____

Company Address: _____

Contact Phone: (Office) _____ (Mobile) _____

Fax #: _____ Email Address: _____

Institution: _____ Membership No: _____

Amount (HK$): _____

Supporting Organizations: